

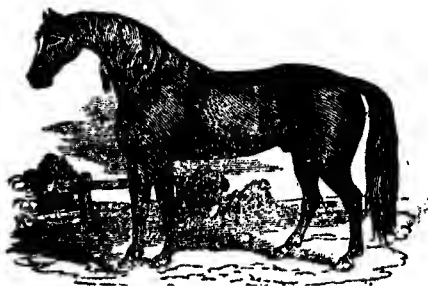
A
COMPENDIOUS SYSTEM
OF
VETERINARY INSTRUCTION,
BY
QUESTION AND ANSWER,
PREPARED AND ARRANGED
UPON
MODERN AND SCIENTIFIC PRINCIPLES.

BY B. BULL,
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"Cognitione Naturæ et Scientiâ beati sumus."—CICERO.

"It is the duty of every man to endeavour, that something be added by his Industry, to the hereditary Aggregate of knowledge and happiness."

DR. JOHNSON.



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PREFACE.

Perhaps, there is no fact more interesting and certain, than, that the improvements which have been made within the last half Century, and are now progressively making, in reference to the popular Sciences of the Day, have never before been equalled in any age in the History of the scientific World. This observation, it is presumed, will at least hold good, as it regards that department of it, which has been denominated, "The Veterinary Art." It cannot, I think, be fairly denied, that this latter section has lately made equal, if not more rapid advancements in the scale of improvement, than any other distinct branch of general science. This circumstance may be attributed in a great degree to the superlative advantages of a *National Veterinary Institution*, (I now allude to the *Veterinary College*), a public seminary, established by *Royal* sanction, and expressly intended for a more minute and extensive cultivation of *Veterinary Science*, and to deliver it from that disgraceful abyss of ignorance, in which it was formerly engulfed. Notwithstanding this consideration, it may be truly affirmed, that the above Art, after all that

can be said as to its recent advancement, is even *now*, only in a state of comparative infancy, not in point of duration but in progress; for although we learn from the records of antiquity, as transmitted to us in the history of Veterinary Medicine, that a few individuals of considerable literary eminence, both studied and wrote upon that subject, yet it unfortunately happened, that most of them were either Poets, Warriors, Historians, Naturalists, or other persons of similar pursuits, whose attentions could not possibly be (as they ought to have been) *exclusively* directed thereto, and consequently the science was only partially, and not extensively cultivated like that of *human* Medicine;—Authors on which were of the highest order and the most practically informed. It is true that the latter class of persons, some of whom were deservedly popular in their profession, devoted a small portion of their philosophical studies to this *then* much-neglected part of medical science, but having no other criterion to go by in their enquiries than a fallacious system of reasoning from *analogy*, it followed as a matter of course, that no material improvement could be made, and the art necessarily continued in a state of lamentable imperfection and obscurity. We are therefore, we consider perfectly warranted in asserting that, in consequence of this unhappy obstruction to its progress, until within a comparatively recent period, it still remains in a certain sense, but in its infancy; nevertheless it is hoped,—indeed it is highly probable, that if it continue to have the

patronage of the *Throne*, and be favoured with the increased studies and practical abilities of well-educated professional men, it will rise considerably higher in the scale of public importance, than it now stands, and be made, at no very distant period, to sustain a character confessedly desirable to society, and gratifying to the members of the Veterinary community. This is, and always must be, an object most deservedly worthy of our warmest wishes—our strongest desires, and one which the author sincerely longs to see abundantly realized; and however limited his extent of information may be, when contrasted with that of many popular and luminous stars, who have honoured the public and their professional brethren with the result of their labours; still he is desirous of contributing his confessedly scanty pittance of knowledge and experience to the general Fund of Veterinary Intelligence, and thus if possible, be made instrumental, let it be in ever so small a degree, in serving the interest of society, without infringing upon either the dignity or the claims of his profession. The principal reasons for the appearance of the following sheets, consist in the deeply felt conviction of the author, as to the *yet* restricted circulation of works especially written on Veterinary topics, and the consequently comparative uninformed state of the public, with regard to the nature, treatment &c. of diseases in the horse; but a stronger source of inducement than this was the painful fact, that a vast majority of persons al-

most totally unacquainted with either the anatomy, physiology, or disorders of that noble animal are still engaging in Veterinary Practice, although destitute of the necessary advantages of a well grounded, professional education;—a circumstance not only unfavourable to themselves as practitioners but also to that part of public society who may favour them with their support.

The *subjects* included in the following production chiefly refer to the anatomy, physiology and diseases of the horse : it is true that the *minutiæ* of every subject treated upon in it have not been entered into, but this is the case, because it has not been thought indispensably necessary ; most of the *anatomical* terms have been explained in the descriptions given of each organ, or part of the animal system, and in addition to this, other technicalities of common use in medical conversation, have been simplified and made intelligible to the junior student. With regard to the *physiology* of the horse, it will be perceived upon attentive perusal, that no absolutely essential branch of that improving department of Veterinary science has been entirely omitted, but such definitions offered, as have been thought sufficiently descriptive, or at least calculated to prepare the way for a closer application to other more voluminous treatises on that Subject. The remarks on the *diseases* of the horse, it is admitted are but few and brief ; nevertheless, it is presumed, that they do not fall short of the author's design of forming a proper basis on which the practical abilities of the in-

quirer might be safely founded, and from which he might hope, with the advantages of future experience, to improve and advance. It will likewise be observed that occasional descriptions of certain important *Medicines*, generally used in the business have been included in our definitions, but of course not to that extent which a *Veterinary Materia Medica* professedly written for that purpose, would necessarily comprise, and to which the reader may refer if occasion should require. Another observation which the author would make as an apology for his appearing in the character of a *Veterinary* writer ; is that he is not a mere speculative Inquirer, or a superficial reader of veterinary books, but has had the advantage of a proper education in his profession ; and the observations, he has made in the work which he is emboldened to lay before the public, are the consequence not only of anatomical and physiological study, but also of several years *experience* enjoyed by himself, besides having had the invariable sanction of his late father, during a series of forty years extensive, and respectable practice in the *Veterinary Art*. In concluding these prefatory remarks, it may be just observed that one great end, intended in the publication of the present treatise is to assist the “*young beginner*” in the attainment of the rudimentary principles of the above mentioned science, the chief object of whom is (or at least *ought* to be) to become acquainted with the generally required parts of his profession, and be able to learn his business in the

easiest and most expeditious manner. It was principally this end, that induced the author to adopt the *cataphetic* system, as the plan of his instructions, and this plan was not chosen from mere caprice, but from the fact that he, himself had derived the most evident and superior fits from it, during the time he engaged in venile and elementary studies. In addition to this it may be stated as a further reason for so doing, that the method itself has had the sanction and example of several respectable writers, whose names need not be specified; we have our catechisms on the Languages, on the science of Astronomy, History, Chemistry, Botany, &c. &c. and why, upon the very same principle, may not a *Veterinary* Catechism be allowed to appear, with equal claim upon the honest investigation of the candid and impartial? particularly as the plan of Question and Answer has hitherto been attended with so many evident advantages to the student, in almost every department of useful and instructive knowledge. The author therefore without any further apology on the subject, would humbly venture, under the influence of these impressions, to submit the following pages to the candor, generosity, and indulgence of a liberal and enlightened Public.

Ans. It has been very much disputed, by certain respectable practitioners, whether they can be said to have any real effect on the animal system, at any time,—particularly so in reference to what is called black antimony, but this doubt most probably, in many instances, has originated from a want of close and careful observation; I have certainly witnessed, in the course of my practice, some of the best effects from the use of the antimonials, even from the sulphuret of antimony; it is true it has not excited *sensible* diaphoresis, nor can we ever expect this as a result in any case, but it has given a high polish to the skin, and produced other salutary effects upon the constitution, which are much better seen than described. As for tartarized antimony, and antimonial powder, these may be allowed one of the most important stations in the list of veterinary medicine; they reduce fever, *simple*, or symptomatic, and that too, quicker than any other medicinal articles with which we are acquainted; indeed, their use is sanctioned by the highest veterinary authorities, having been proved to be decidedly *beneficial* in those cases, that require their administration. This therefore, with other considerations we presume, are a sufficient reason for our strongest unequivocal recommendations. It ought to be observed, that warm clothing, and good grooming, very materially assist their effect, when administered in diseases of the horse.

QUES. *What is the meaning of ANTIPHLOGISTIC?*

Ans. A term technically used, to define a

mode of treatment, applicable either for external or internal inflammation; for instance, if a veterinary surgeon, be asked how he treated an inflamed part, he will reply that his treatment was truly antiphlogistic.

QUES. *What class of medicines are denominated ANTISEPTICS?*

ANS. By this term, is understood any ~~thing~~ that resists putridity, and the most conspicuous articles of this description, are the preparations of bark, opium, yeast and others; this term antiseptic, has been thought to be empirical by some, and its general adoption, has been considered the result of attaching a kind of *magical* influence, to the power of medicine; but in reply to this we say, that we would not for a moment, attribute any unreasonable, or merely imaginary importance to any class of medicaments, but we do think, notwithstanding, that certain properties, not merely *tonic* or *stimulant*, are possessed by the medicines before mentioned, but most *peculiarly* antiseptic, that is, immediately checking the putrefactive process, while others of a stimulating character, have failed to do this. This fact then, we presume is sufficient to warrant this distinct appellation, and ~~must~~ remove any doubt from the minds of the considerate and unprejudiced. I have seen large masses of putrified, or if you prefer the term "mortified" flesh, removed in a few hours, by their external and internal use, and can strongly recommend their adoption in all cases of gangrene, or mortification

in wounds, as being decidedly the most powerful and effectual medicine, we can possibly administer.

QUES. *Is not the APPETITE of the horse, sometimes "morbid," or "defective."*

ANS. Yes, the former originates either from the foolish plan of immoderate feeding, or from an improper kind of food, being given to the animal, which disorders the functions of the stomach, and disposes him to eat more voraciously; and if the food be innutritious also, such as musty hay, &c. the horse's wind will often become imperfect through it. Worms will form thereby, and a chain of other seriously morbid consequences will frequently follow. A defective appetite, is generally the result either of fatigue from hard labour, or from debility in the stomach, from fever, and other causes, and can only be removed by a knowledge of what produced it; if it be from excessive labour, moderate rest will be required, or an occasional cordial; if from indigestion, a proper attention to diet, and small doses of aloes with stomachics will be found very useful, and if from fever, he must be treated as directed under that head.

QUES. *What is ARSENIC?*

ANS. A mineral caustic, not very often, though sometimes used, in veterinary practice, it is a strong poison, and requires great caution when given to the horse; I know those who have been inclined to think it a very good application for poll-evils and fistulas, but by giving it a fair and repeated trial, they have found it to be a very

dangerous medicine. Its caustic powers are so great that the small portion of not more than half a drachm divided into four or five tents, when put into a fistulous tumour, has "fetched out a core," or sloughing, nearly as large as the half quartern loaf. It has exercised its destructive action so much, as to destroy both ligament and bone ; yea, four or five inches of the bone has been found denuded and excoriated through its application. It is true, I have known it to succeed in curing an obstinate fistula, when all other remedies had failed ; but I would advise the practitioner never to use it for fear dreadful consequences should follow. It is said by some writers, to be a good medicine in contagious farcy ; but here I would warn the junior veterinarian never to use it, as a remarkable debility must and will ensue from its administration ; in short it is too hazardous to be given at any time. I have even found sublimate, though given in very small doses, produce an alarming degree of weakness, assisting, as it were, rather than preventing the absorption of virus. How much more dangerous, must arsenic be, when given in such large doses as have been recommended by some writers ?

QUES. *What is ASSAFÆTIDA ?*

ANS. A disagreeable gummy substance, occasionally used in veterinary practice, and is supposed to have expectorant and antispasmodic qualities connected with it. It is approved by the highest veterinary authorities, and the effects I have discovered from it, in my practical observations,

induce me to recommend its adoption in cases of chronic cough, as a pectoral, in doses of two or three drachms, in combination with squills and other articles of similar efficacy ; but as an anti-spasmodic I cannot speak of its advantages so strongly, having generally preferred the substitution of other medicines of more decided effect, in its place.

QUES. *What is the meaning of ASTRINGENTS ?*

ANS. Any ingredient or medicine which can check morbid evacuations ; as in diarrhœa, which is an unnatural or rather increased liquidation of the fœces. Astringents here act by their binding qualities, the principle articles of this class are catechu, superacetate of lead, alum, and a few others ; alum, zinc, white lead, and bole armenian, are the astringents most commonly used for external application,

QUES. *What are BALSAMS, and of what use are they ?*

ANS. Most of the balsams, are, in my opinion, mere trumpery as internal medicine, and do not deserve a place in the Veterinary Materia Medica at all. There is a variety of balsams, but the one most commonly used in veterinary practice, is balsam of sulphur, or sulphureted oil ; this however ought to be discarded altogether, being as it certainly is purely inert and useless. With respect to friars balsam it has been recommended by some veterinarians, as being a useful tincture for caries or decayed bone, I have generally found from personal experience, that tincture of aloes is equally as effectual. But neither of these appli-

cations will be sufficiently efficacious, or very rarely so in carious bones, without the co-operation of the actual cautery; it being proved, with the exception of the coffin bone, that few cases of caries can be cured without the hot iron. The reason that the coffin bone when decayed, gets well by the application of the tincture only, independent of the actual cautery, is, because it is very soft and porous in its texture, and consequently the process of exfoliation is much quicker.

QUES. *What is BARRING A VEIN?*

ANS. Barring a vein, is an operation suggested by the primitive farriers, and is, I am sorry to say, to the dishonor of the profession, practised even to this day, by some; it consists in taking out about two or three inches of a vein, running down the inside of the thigh; this vein when it passes over that part of the hock, where "blood spavins" are situated, forms (that is when the bursa or bag is diseased) an enlargement, which cannot be removed according to some farriers' notions, without a portion of the vein is excised, and its extremities tied by a ligature. But to this assertion I would answer, remove the cause and the disease will cease; that is, reduce the enlargement by blisters, and then the vein will be of its original size; it is foolish and cruel therefore to adopt such a barbarous operation, when the enlarged vein is known to be the effect and not the cause.

QUES. *What is BILE?*

ANS. Bile is a secretion formed from the liver, and is designed by nature as a stimulus to the bowels, to increase their motion, which motion is

technically termed peristaltic, or by some vermicular, being similar to the creeping movements of the worm. It also serves or rather assists in the curious process of animalization, by mixing with the digested mass called chyle, and is from thence conveyed to the minute orifices of the lacteals, where the chyle, or nutritious fluids are absorbed.

QUES. *What is the BLADDER, and of what service is it in the animal economy?*

ANS. The bladder is a receptacle designed for the reception of that well known secretion called urine, and is composed of three coats; the first is considered by some anatomists to be muscular, but many inquisitive minds have been led to doubt the correctness of this notion. They have thought, that as the fibres of which this investment is composed, are indemonstrable, and cannot be discovered even by the most minute and microscopic observation; it cannot of necessity be justly considered a muscular tunic. But however, be this as it may, we must admit, as the power of contractility is peculiar to muscular texture, and no other, that it certainly is according to the most generally received opinion composed of muscular fibres.

QUES. *But are there not two more coats?*

ANS. Yes, there is the middle coat, which is similar to the external, and there is the internal also, the latter is altogether different from the former, namely, it is membranous, and a mucus secretion is formed by a class of secreting vessels,

for the purpose of preventing the acrimonious qualities of the urine. Had it not been for this bountiful provision, the bladder would become incontinent, and unable to hold its contents. But such is the all-sufficiency of nature that she never leaves her works unfinished or defective.

. QUES. *What ducts convey the urinary secretion to the bladder ?*

ANS. The ureters ; they pour their contents into the bladder, just about its centre, are very elastic, and are cuticular in their texture. This organ is situated in the umbilical region, and its anterior portion is covered by a prolongation of the peritoneum, or membrane that forms a kind of bag, and encloses the whole contents of the abdomen. It has also a sphincter, or neck, attached to its body, and its contractile powers are very strong owing to the coarseness of its muscular fibres ; these are principally longitudinal and circular ; the longitudinal fibres straighten the tube, and the circular, by contraction, assist in the expulsion of urine ; it is subject to inflammation which will be noticed hereafter, and to paralysis or palsy, and sometimes to incontinence, which is not always an inflammatory complaint, but the effect of a relaxation in the muscular fibres.

QUES. *Give a description of the diseases to which the bladder is subject ?*

ANS. As you have hinted a wish that I should define the diseases of the above organ, I will begin by first describing "inflammation of its body," this complaint, is most commonly brought

on by an improper and excessive exhibition of diuretic balls, but there are cases which may be ascribed to a general excitement in the system, produced by immoderate exertion, or unnatural fullness. It will be tedious, for me to enter into a minute detail of the *exciting* causes, suffice it to say, that the *proximate* cause, or rather the effect, of the exciting cause, is a morbid irritability, occasioned by the acrimony of the urine. This incapacitates the bladder for holding or retaining its contents, and produces a constant, but ineffectual desire to stale.

QUES. *Is not a great deal of discrimination requisite to distinguish it from inflammation of the kidneys, or from inflammation of the neck of the bladder?*

ANS. We allow that a considerable degree of discrimination is necessary, to distinguish the one from the other; but notwithstanding, we think that a tolerably correct diagnosis may be formed, by the following signs; namely, in inflammation of the kidneys the principal mark of distinction is, a remarkable stiffness in the hind quarters, and a flinching when the loins are pressed upon. Inflammation of the neck of the bladder, may be distinguished from the body of the bladder, by a considerable distention being present, in the former, and not in the latter, a circumstance known only by examination "per rectum," that is, when the neck is inflamed, it naturally follows, that retention will ensue.

QUES. *Now you have given a description of the*

causes and symptoms of this disease, allow me to request you to define your mode of treatment?

ANS. As diuretics have naturally a very powerful tendency to increase the action of the kidneys, and as a consequent increased secretion of urine, is sure to take place, it must of necessity follow, that nitre, resin, or any other diuretic medicine, should be refrained from, as they tend to increase rather than remove the evil. But notwithstanding we ought never to neglect or omit the administration of laxative medicine. We should bleed to the extent of from three to six quarts, according as the patient is more or less able to bear such depletion, and either apply a sheep skin upon the loins, or else the mustard embrocation. It would not be wise to use any blistering, or terebinthinated application, as they, by absorption, have the same injurious tendency as nitre or resin; nevertheless, I would recommend after the laxative, to give small doses of opium, and camphor, in combination with pulvis antimonalis, or with tartar emetic, as they by their antispasmodic and diaphoretic virtues, will remove the painful irritability of the bladder. We should constantly persist in the application of anodyne clysters, or simple warm water will do nearly as well, and put on two or three body cloths to excite diaphoresis. It will be prudent also to give linseed infusion, and adopt to the fullest extent the antiphlogistic system of treatment. It would be bordering on quackery, to prescribe

a long list of medicaments in inflammation, whether it be local or general, the remaining part therefore of the *modus curandi*, or mode of treatment that may be required, must consequently be left to the practitioner's own judgment.

QUES. *What treatment would you adopt in inflammation of the neck of the bladder?*

ANS. The treatment must be similar to the above, with one exception, namely, if the bladder is found by examination to be much distended, it will be necessary, should the patient be a mare, to introduce a catheter up the urethra, which will cause the immediate expulsion of urine. But should it be a horse, gently thrust up the urethra a circular piece of whale bone or cane, about twenty-four inches in length, or more if required, and no wider than the last urinary passage will easily, or without pain, admit the introduction of. As soon as you can distinctly feel the instrument at the *perineum*, or a little below the *sphincter ani* or fundament, cut upon it with a bistoury, and then softly put the catheter in the orifice. This will relieve in nine cases out of ten, should it however not prove effectual, all other remedies will be of no avail.

QUES. *What have you to advance concerning BLEEDING?*

ANS. Bleeding, viewed as an operation only, is certainly very frequently and very easily performed, it is divided into *general* and *local*, according to the part chosen for venesection. If blood be taken from the jugular or neck vein, it

is called *general*, if from the plate vein or eye vein, or from the toe of the foot, &c., it is called *local* or topical, because the abstraction of that fluid in such cases, is only, or principally from the immediate parts, and not from the system. I shall not here enter into a description of its necessity, uses, quantities, and so on, as these will be noticed in our separate descriptions of each disease, but simply observe, that the best instrument for general purposes is the fleam, particularly in cases of organic inflammation, as a freer flow of blood can be obtained by it, than by the lancet, but if bleeding in the "saphena" or thigh vein, be required, a proper and broad lancet should certainly be preferred to the fleam, but must be well guarded by the thumb and finger, when we introduce it into the venous channel.

QUES. *What is the use of* BLISTERS?

ANS. Blisters, as to their utility, are so diversified, that there are but few cases which come under our professional cognizance, in which we do not use them. In organic inflammation, such as Pneumonia or Enteritis, we apply them externally for the sake of making a diversion, or in clearer words, for the sake of bringing inflammation from a more important, to a less essential part. In glandular inflammation, such as strangles or catarrh, we use them either to promote suppuration, or else to check the inflammatory action going on in the laryngeal or tracheal membranes.

QUES. *What other case can you advert to in which they are beneficial?*

Ans. In callous enlargements of the flexor tendons, that is, when a deposit of albuminous matter is left, in consequence of their having been *strained*, as the jockey phrase is. Here we blister as a stimulus to absorption, by which the enlargement is diminished, and sometimes, the inconvenience of lameness permanently prevented. We also blister, when a cold and indurated tumour presents itself, or when an extravasation of blood in the cellular substance is present, and with no other view do we do so, than either to discuss the swelling by repulsion, as it is called, or promote the formation of matter. It is necessary whenever a blister is applied, to be very cautious as to the temperature or heat in the part ; if it feel the least hot, we should omit its application, for fear an excessive degree of inflammation should follow, and a blemish be the ultimate consequence. In nine cases out of ten however, this is generally the effect of some caustic ingredient being in the blister, and not the heat of the part ; nevertheless this is certainly a precaution which we ought not at any time to lose sight of. Liquid blisters are sometimes used, as being quicker in their action. So far, it is well to prefer them, but in most instances, no form of blister can be better suited for general application, than the *unguentum lyttæ*, or cantharides ointment.

QUES. *Is not mercurial ointment a useful addition in a blistering composition ?*

Ans. Yes, because its inunction is a powerful stimulus to absorption, without exciting inflam-

mation, it rouses the absorbents by a property, not simply excitant, which is the case with all other vesicatories, but a power inherent, and peculiar to itself. Therefore I would recommend its adoption, in splints, spavins, and ring-bones, and more especially in diseases of the *bursæ mucosæ*, or enlarged mucous capsules.

QUES. *Give me an anatomical description of the BRAIN, and its meninges or membranes?*

ANS. The brain is situated in the cavities of the skull, and is surrounded, if I may be allowed the comparison, by *bony walls*. The mechanical advantage of these bony walls, or the different bones constituting the cranium, called by anatomists *ossa parietalia*, or parietal bones, *ossa frontis*, or frontal bones, *ossa temporum*, or temporal bones, *os occipitis*, or knoll bone, *os sphenoides*, and *os ethmoides*, which are certain names given to them on account of their situations, form, &c., is too evident to need any illustration; suffice it to say, that they prevent the otherwise frequent liability of the brain, being injured by blows, or any other accidental cause.

QUES. *Give me an anatomical definition of the brain, and meninges or membranes only, as there is little or no necessity to refer to the bones of the skull here, they being included in that branch of anatomy called OSTEOLOGY?*

ANS. To enter into a detail of the brain and its membranes, I will commence by noticing the *cerebrum*. The *cerebrum* is the greater portion of the brain, and is composed of two parts,

one called *cineritious*, or *cortical* portion, and the other *medullary*. The cortical portion may be considered in the same light as the bark of a tree,—a mere investment. In short, the derivation of the word cortical must convey that idea, because cortex, making corticis in the genitive case, is the latin term for bark, and therefore there can be no doubt, in my opinion, as to the propriety of the above comparison.—This portion named cortical, is proved to be nearly void of sensibility, a fact most extraordinary, when we consider how plentifully it is supplied with blood vessels and nerves. Bifurcations of the *vertebral* and *carotid* arteries, enter the skull by means of foramina or holes, and therefore no doubt can be entertained, respecting its being supplied, and that too abundantly, with blood. It has been proved to a demonstration, notwithstanding all the above circumstances, that it is comparatively insensible; because in cases of concussion certain cortical portions of the brain have been taken out, without causing any acute sensation,—it has even been punctured, and the subject has not struggled to remind us of its sensibility, a circumstance too conclusive to need any farther illustration. It is found on minute examination, to be of a greyer cast in colour, and rather softer in its texture than the *medullary* portion, not that this tends in any degree to unravel the mysterious cause of its being so insensible, but on the contrary, it must help to make it appear more wonderful, and inexplicable.

QUES. *What is the cerebellum?*

ANS. The cerebellum is the little brain, and appears to be distinctly separate from the cerebrum, but still it is generally allowed to be nothing more than a continuity of cerebral substance. It is very similar in its appearance to the great brain, with the exception of one thing, and that is—(if you cut it in two) an *arborescent* appearance will be seen in its interior, having a resemblance to the branches of a tree, this is too evident, if it be examined, to escape the slightest notice. This remarkable speciality, has been denominated *arbor vitæ*, or the tree of life.

QUES. *What is the medulla oblongata?*

ANS. The medulla oblongata is nothing more than a continuation of the cerebral substance, nor is the spinal marrow; it is situated just behind the cerebellum and fills up the fourth ventricle. The spinal marrow runs along the whole course of the spine, through a cavity called the *foramen spinale*. It is similar to the other parts of the brain, and is supplied with blood from the vertebrals, and from two vessels called *arteriæ spinales*.

QUES. *What are the membranes of the brain?*

ANS. There are three membranes, one which lines the internal surface of the cranium, and is designated *dura mater*. Another intervening one named *membrana arachnoidea*, and the third is the immediate covering of the brain itself. First, I shall describe, in as brief a manner as I can, the *dura mater*. This membrane by its affording an even and smooth surface, prevents the brain

from being pressed upon by the prominent edges of the indented skull, and by sending off laminae, it serves the purpose of a *mediastinum*, dividing the *cerebral* substance into *cerebrum*, *cerebellum* and *medulla oblongata*. It adheres very closely to the cranium, and it is with great difficulty that we strip it from the bones on which it is situated. A bland and smooth secretion is formed by a class of secerning vessels, as a lubricating medium for the brain to lay upon, and a superabundant formation of this fluid, constitutes, what is technically termed *hydrocephalus*, or *cerebral dropsy*; I now refer to effusion in the cavities of the skull, and not to an accumulation of fluid in the ventricles of the brain, which commonly goes under that especial denomination; this is generally the effect of phrenitic inflammation, in which the vessels extravasate to relieve themselves.

QUES. *What are the other membranes called, and of what service are they in the animal economy?*

ANS. The intervening membrane is termed *arachnoidea*, from its supposed resemblance to a spider's web, it is remarkably delicate in texture, and is thought, by some, to be nothing more than a continuation of the *pia mater*, which is another investment immediately covering the substance of the brain: if it have any function allotted to it, it is that of co-operating with the above membrane in the supply of blood to the brain. The latter, or *pia mater*, is a very delicate membrane, and adheres very closely to the brain; it is plentifully

supplied with blood from the *carotid* and *vertebral* arteries, the branches of which are so minute, as to be scarcely discovered by the naked eye,—except in cases of inflammation at that part. When stript from the *cerebral* substance, it presents on its internal portion, a very rough and uneven surface, and its office is to furnish the brain with blood.

QUES. *As the physiology of the brain and nervous system, is a subject not only interesting and instructive in itself, but, as it also comprehends certain essential particulars, of allowed general utility, in the science of Veterinary Medicine, give me a brief description of their functions, as they refer to that noble animal the horse?*

ANS. To enter into minute and extensive definitions of the physiology of the brain and nervous system, would be to say the least of it, to carry our observations to an extent, most decidedly further than our professed intention to be brief, will allow; indeed it would be, in addition to this, to attempt an undertaking, that more naturally belongs to treatises of a voluminous character. We shall, therefore, confine our remarks to a mere abstract of the leading and most prominent functions, of those vital and essential organs, the brain and the nerves. One distinguishing office of the brain is to give *sensation*,—by this term we are to understand, in the *philosophical*, in contradistinction to the *common* sense of the word, that perception which the mind has, when any object or objects strike upon the senses

including the sight, hearing, and the others. This principle called *sensation*, derives its origin from the brain, in proof of which we have only to refer to cases of *occipital* or *cranial* concussion, in which all sense of feeling is destroyed. One particular instance of *occipital fracture*, occurred in the course of my practice some years ago, in which the horse was evidently insensible to all surrounding objects and occurrences. The five senses were immediately suspended in their operations; the eye was insensible to the strongest light, even the dazzling light of a closely applied burning candle; the ear was deaf to the report of a gun or pistol, indeed to the tremendous *artillery of the clouds*, I refer to thunder; the nose was insusceptible to impressions from the most fragrant, or most offensive substances; in short, all the before mentioned avenues of the brain, if I may be allowed such a comparison, were completely blocked up, and the horse could neither see, hear, feel, taste nor smell. Thus far we have proved, we presume, what is the source of *sensation*. Indeed, if we divide any nerve, which is nothing less than an agent of the brain, we produce a similar effect, for it does occur in some particular cases, that horses affected with the *canker* in the foot, if they are very outrageous and intractable, are obliged to be *nerved*, as it is called, that is, the metacarpal nerve is divided, in order to deprive his foot of exquisite sensibility, and thereby enable the practitioner to pursue his practical operations, and apply those medicines which

before would be painful and irritative. We will now notice *muscular energy*, as the result of cerebral influence; muscles themselves are the organs of motions, and they derive their motive energies from their nervous connexions with the brain, to demonstrate which, the athletic limb, when deprived of its nerve, becomes paralyzed and immovable; *all* the muscles act, from their vital communications with the *cerebrum*, the seat of the *sensorium*; the eye deprived of nervous influence, becomes unable to collect and concentrate the rays of light, the ear to gather the sounds that vibrate upon the air, and so on. The well framed horse, furnished naturally, with almost an unlimited extent of muscular power, when put to exertions that strain his every nerve, and force him to go beyond his strength, necessarily "sinks under nervous exhaustion, and so far from being able to renew, or increase his former vast and extensive strides *in going*, becomes almost unable to walk; and why so? because his muscles do not receive their supplies of energy and nervous influence, in that degree which the animal requires. However, perhaps one simple reference, without any further elucidation upon the subject before us, will establish the fact beyond a doubt. It is said to be customary in some parts of this kingdom, for those vile, lazy, worthless, dissolute wretches, called poachers, to divide the *recurrent nerve* of their dogs, to prevent their barking, an action which requires the exercise of several muscles in order to effect it. Now the nerve in

this case is the agent of the brain, and gives the muscles power to *play*, so as to form that peculiar sound called barking. Innumerable other instances might be brought forward, sufficient to prove the fact, that *muscular energy* is one grand branch of the functions of the brain. We will also beg to speak a little on the prevalent existence of *sympathy*, as another effect of cerebral energy. By this word sympathy, I mean the effect which disease, or indeed any sort of *excitement*, not purely *morbid*, but sometimes natural, has on any other part or parts, not immediately connected with itself. For instance, excessive fear, will frequently excite the heart and arteries to increased action, and from a principle of *sympathy*, or fellow feeling, also agitate all the external muscles of the body, and put the animal into a state of extreme nervous tremulation, or trembling; and this it does in the primary sense, by affecting the nerves, which are the agents of the brain. Acute pain will likewise cause a profuse discharge of perspiration, and accelerate the breathing very materially. The sympathetic connexion of the stomach and brain, will occasion that sleepy stupor, so prominent a symptom in *lethargic* staggers. Irritation of the *larynx*, will cause an effort to cough, which effort takes place from the action of the abdominal and other muscles, the latter *must* act when the former is excited. In short disappointment itself, without any other connecting influence, will sometimes suddenly constrict the neck of the bladder, and produce a very

violent spasm. This was remarkably evinced, in the case of my Father's horse, which case might be minutely particularized, did not the laughable singularity of the circumstance, forbid its description. Indeed, several other references might be adduced, to substantiate the fact that sympathy is a clearly marked function of the brain. Lastly, *instinctive* capacity may be now finally included, in our physiological descriptions. This also, evidently originates from precisely the same source as the former. To include in our remarks any thing referring to the *mind*, as connected with the horse, may be viewed probably by some, as not in place; but as rather more immediately, and properly, yea, *exclusively* applying to the departments of *human* physiology, and not to the subject now before us; but when on the other hand, we consider, that the horse is furnished with a brain like ourselves, and that that organ is also of no ordinary magnitude or size, we must allow that it has, in the course of its important functions, not only to supply and support the mere *physical* energies of the animal in question; but also to serve as a kind of *director* to him, to guide his steps, give him powers of discrimination to distinguish good from evil,—that is, as it regards his food or provender, to avoid dangerous objects, and in fact to make his choice, in a thousand instances which his necessity or pleasure may induce. That there is a *compound* nature in the *intellectual* system of man, which includes *reason* as well as *instinct*, two distinct principles,

raising him above the semi-intelligent creation, we cannot with any degree of justice deny, but how far the line of demarcation, that in certain admitted respects, distinguishes the man from the beast, may be drawn, cannot very easily be decided. We know that the *human* mind can first *perceive*, then *compare*, then *reflect*, then *judge*, and by a principle of association so *combine* ideas together, as to form that act of the intellect called *reason*, a boon which the great creator has denied to the brute ; but we are not to infer from this superiority in man, that no kind of mental principle whatever is given to the animal. The horse one of the most noble and sagacious of the inferior order of beings ;—whose *cerebral* structure, so nearly resembles that of the human brain, must doubtless, be capable of various *mental* exercises, immediately resulting from the influence of that organ, and though we readily admit that *sensation* is the primary source of all his knowledge, or in plainer words, that the senses are the only channels by which various impressions are conveyed to the brain ;—still this does not invalidate the opinion, that he has a kind of *mental* principle peculiar to himself, though inferior to man. Indeed it was the firm opinion of a very celebrated philosophical writer, of ancient date, and is, I believe, the sentiment also of some modern metaphysicians, that the Aristotelian notion of “*nil est in intellectu quod non prius fuerit in sensu*,” is perfectly correct, as it refers to man, that is if you put the additional clause of “*nisi ipse intellectus*,”

Ans. There have been many ingenious theories started, by various and well informed authors, as to the nature of this complaint, but as they have all left the case in a state of doubt and uncertainty, it will not be necessary for me to enter into a minute description of the disease ; I will therefore, merely suggest the opinions most generally received concerning it, and the system of treatment now under, almost, universal adoption for its removal. Some have thought it arose from a morbid secretion, plugging up the minute branches of the wind-pipe, and thereby preventing the free and easy expansion of the lungs ; others have supposed, though rather absurdly, that the *parenchyma*, or substance of the lungs, grew so large, that the cavity of the chest was too small for the lungs themselves to expand ; some have imagined that it was caused by a rupture of the phrenic nerve ; but the most generally received, and I think, certainly the most plausible opinion, is that a rupture of the air cells, essentially constitutes broken wind. This rupture, sometimes arises, from the stomach being so full, as to prevent the proper recession of the *diaphragm*, and consequently brings on a disturbance in the breathing process. The above mentioned list, may be considered as the *proximate* causes of the complaint ; there are also *pre-disposing* causes, at any rate there are *exciting* causes, such as inordinate feeding, either on dry or succulent food ; sudden or extreme exertion ; and other *prevalent* causes. The *pre-disposing* causes are a constitutional liability in the breed of the animal. to this

disease, or in some cases, probably, a peculiar structure in the natural form of the chest; however, let the circumstances that *produce* it, be what they may, it is certainly a very serious and incurable disorder. Having therefore stated, what I conceive to be sufficient, respecting the nature and cause of this disease, I will say a little concerning the *criteria*, generally made use of for its detection. Some judge by the unequal motion of the flanks; this symptom was the criterion so strongly insisted on by La Fosse, a celebrated French Veterinary writer, who says in his “Manual of the Veterinary Art,” when treating on this disease, “Il n’est pas nécessaire pour juger un cheval poussif qu’il toussé, ni qu’il jète, le symptôme du *battement en deux temps* suffit seul pour le caractériser tel: et l’on voit souvent des chevaux poussifs outrés, ne point tousser ni jeter.” *Vide, La Fosse, Manuel d’Hippiatrique.* But this is not, in my opinion, so correct a standard, as is another means which I shall refer to, because during the time of our inspection, the lungs may be comparatively free and tranquil, and under little or no excitement, or the state of the disease may not be so desperate, or confirmed, as in others. Therefore I would suggest, that a free and steady, though tight compression, of the larynx, be used, whereby the horse will be excited to cough;—this cough being so peculiar, will at once decide its presence, and prove the safest mode of detection; it is a sort of feeble and grunting sound—just as though the lungs were too weak to send

out a strong and powerful expulsion of air, and as if something had been taken from their aggregate power. I will now refer to the mode of treatment necessary to be adopted in this disease: namely, whatever food carries the most nutriment, in the smallest room, is to be given; and occasional purgatives administered, to unload the bowels; let it be here remarked, that it is foolish and useless, to rely upon the mere supposed efficacy of *cordial diuretics*, and pectoral medicines, in this disease. However highly I appreciate the professional abilities of a late writer on Veterinary Medicine,* who recommends them,—yet the benefit they effect, at the best is but palliative and obscure,—and even this result of their use, however desirable it may be, cannot be produced without strict and minute attention to the proper management and distribution of the animal's food. I would therefore advise the practitioner, never to place implicit confidence in the medicinal virtues of any articles, or compound without the co-operation of careful and prudent feeding. The best kind of regimen for the horse, in this complaint, is nutritious food, in small quantities, as good oats, with a little good hay, and the additional use of a few carrots, which are extremely useful,—water should be given moderately, and the horse ought never to be strongly exerted immediately after a meal. I cannot conclude this subject without referring to the shameful and ignorant

* Mr. James White, formerly Veterinary Surgeon, to his Majesty's First Royal Dragoons.

practice, still enforced by many bunglers, of making an artificial *anus*, in this disease,*for the expulsion of foul air, confined in the intestines ;— this practice I conjecture, took its origin from an idea, that broken wind consisted in a flatulent state of the bowels,

QUES. *What is the meaning of BRONCHOTOMY ? and what is it used for ?*

ANS. Bronchotomy, or rather tracheotomy, is an operation resorted to, in cases of suffocation ; it is very simple, and consists in first making an incision through the skin, covering the anterior portion of the wind-pipe, and then excising one or two inches of the *tracheal* substance, that is to say, the wind-pipe. Let the incision be made about four or five inches from the larynx, or top of the *trachea*. This will make an opening for the reception, or rather entrance of air into the lungs, and will generally relieve, in a very little time. A *canula*, or bronchotomy tube is then introduced into the opening, and left there till the violence of the symptoms subsides ; after which it is taken out, and the hole or orifice, is allowed to remain open till it is healed, or the divided skin may be so brought together by a couple of stitches, as to allow a little opening for the admission of air into the lungs, and a discharge of matter that may form in the part.

QUES. *Are there any particular instances to which you can refer, wherein it is most commonly used ?*

ANS. Yes.—In cases of suffocation, as I have stated before, occasioned by an oat, or any other

extraneous substance getting in the larynx : this circumstance produces such an alarming sense of choking, that without bronchotomy be immediately resorted to, the horse must certainly die, from a congestion of unoxygenated blood in the lungs. There is some slight difference in the operation to the general method, when performed for suffocation, caused by the introduction of an oat, or any other foreign substance in the larynx, and that is, after the opening is made, a surgeon's probang, or a short stick of whale bone, with a small piece of sponge attached to its end, is gently thrust up the wind pipe, to wipe off the irritating oat or particle. Bronchotomy is also used, when *cynanche tonsillaris*, or strangles, run so high, that the tumefied glands press upon the larynx, so as to prevent the free admission of air into the lungs; but I must here observe, that I am inclined to believe the necessity of the above operation, in this case, might be prevented, by a proper precaution. That is, by bleeding at the outset, and following the anti-phlogistic regimen and treatment, a little more closely. Lastly, It is often tried, but seldom with success, in that disease, called *roaring*, but here it is not so necessary or successful, as in other instances, because, we may perchance, make the incision above, instead of below the obstructing point. Viewing this operation however in all its respective purposes, we may safely conclude, it will only be used in cases where absolute, or immediate necessity may require

QUES. *How would you treat BRUISES ?*

ANS. If only slight, I would endeavour to remove them by repellent applications, as the following : viz.

Sal Ammoniac, 2 ozs.

Vinegar, 6 ozs.

Tincture of Camphor, 2 ozs.

Tincture of Aloes, 1 oz.

Spring Water, 6 ozs.

mix and apply. If this failed, I would promote suppuration by terebinthinated poultices, of linseed meal, and a little venice turpentine. In severe cases, I would bleed, purge and keep the animal on a spare diet, besides adopting the local treatment above recommended. If gangrene presented itself, as a result, I would apply hot poultices of flour and yeast, previously rubbing on the part, and that diligently, some blistering liniment, and also support the system by tonics ; in short, I would treat the case as directed under the head mortification,—See Terminations of Inflammations, and also article on Wounds. If the tumour remain hard after the inflamed condition has subsided, I would apply repeated blisters, till the parts had reinstated themselves.

QUES. *What is CALOMEL, and of what service is it in the animal economy ?*

ANS. Calomel is a preparation of mercury, and is exceedingly useful in veterinary practice ; sometimes it is used, but combined with other alterative medicine, in cutaneous diseases, and is then given in quantity about twenty grains at a

time. If administered in combination with seven or eight drachms of aloes, with a small portion of ginger, and some essential oil, it is an excellent vermifuge. I have given it in catarrh, with nitrate of potash, aloes, &c. in doses of about fifteen grains. In obstinate cutaneous diseases, as before observed, it is often used, and proves very serviceable indeed. I have also seen considerable benefit arise from its exhibition in diseases of the liver; it is recommended by many ingenious authors, in contagious farcy; but here I cannot speak from personal experience, as to its utility; I have only to observe, I have repeatedly tried it, and all the effect I have discovered from it, has been a remarkable prostration of strength, without any apparent check to the absorption of *virus*. How or in what manner it operates upon the system, unless it be given in large doses, I am not prepared to affirm; but this I will admit, it is considered in all points of view, a very essential article in our *Materia Medica*. Whenever this medicine is given, attention should be paid to the animal's food and drink.—He should not have cold water, nor be exposed to wet or cold.

QUES. *What is CAMPHOR?*

ANS. Camphor is an important article in veterinary medicine, and is generally included under the denomination of anti-spasmodic. It is nevertheless often found extremely useful in the latter stages of catarrhal fever, but I cannot think it so admissible in the outset of that disorder. It is sometimes used in locked jaw, but like all others,

seldom, or never with success ; it is considered by some, when externally applied, a very good discutient, and I have no doubt is so, when combined with other repellents. However, I can speak with great confidence as to its medicinal virtues in *internal* complaints, such as flatulent cholic, &c., but particularly in *retention*, or stoppage of urine. In this disease I have repeatedly given it in combination with nitre, and almost immediate benefit has arisen from it.

QUES. *What have you to advance respecting the nature, treatment, &c., of that troublesome disease called CANKER ?*

ANS. Canker, is a disease of the foot, and is known by the appearance of a peculiarly *ichorous*, and corrosive discharge, so thin, and unlike common *pus*, as to be called by farriers *canker water*. It generally begins at the frog, but spreads itself, if not stopped, first under the *vascular*, and then over the *laminated*, surface of the sensible foot, till it totally diseases the ligaments, &c. of the coffin joint, and completely destroys the whole foot ; it is so truly obstinate in its nature, that nothing less than great and extensive practical judgment, will enable the practitioner to cure it. Before I speak of the treatment, it will be necessary to say a little about the various causes that produce it, and here I may observe, that few circumstances tend in a greater degree to occasion it, than improper shoeing ; that is, when the shoes are elevated, or *turned up* at the heels, the frog cannot receive that salutary portion of pressure

for which nature designed 'it, and consequently, disease, in some shape or other, must show itself. *Thrushes* therefore follow, and they by neglect degenerate into canker; another, and I consider, a worse cause than the one above mentioned, is that loathsome and inveterate disease called *grease*. It is a fact well known, that some horses are particularly predisposed to the latter disorder, and the discharge flowing from the heels, being so *ichorous* and offensive, runs into the cleft of the frog, and produces that partial degree of canker, denominated thrushes; and thence, rapidly proceeds from one degree to another, till it ultimately terminates in ulceration of the sensible *laminae*; it is not unfrequently occasioned by suffering the feet to be in constant contact with filth and dirt, thereby rotting the horny texture of the frog and sole, till it comes down to the internal foot, and produces or causes a morbid secretion from the sensitive parts thereof; ending in the present loathsome, tedious, and troublesome disease. Before we conclude our enumeration of its causes, it will be proper to remark, that sometimes, though very seldom, bruises, punctures, &c., of the foot, degenerate into this disorder, either from neglect, or a natural tendency to canker in the animal's constitution.

QUES. *What system^o of treatment will be found most judicious and effectual in the removal of this disorder?*

ANS. It will be necessary *first* to see that all *under-runings* are removed, so that every diseased

part may be naked, and perfectly open to an extensive application of dressing. Secondly, if the foot be extremely *foul*, or cankerous, put some nitric or concentrated nitrous acid, with a feather, upon the *fungous excrescence*; and immediately after, apply vitriolic or sulphuric acid, and tar, in the following proportions; namely, half an ounce of the former, to four ounces of the latter; this must be made warm, and applied; place dry tow over the whole surface of the foot, and after this get two or three splints made of hoop iron; and well secure the dressing, so as to produce a firm, but even pressure upon the parts underneath. Remove the shoe and dressing two days afterwards, and should a *separation* have taken place, from the effect of the above applications, and a healthier or red appearance show itself, discontinue the *caustic* remedies; and first apply the following excellent ointment, viz.,

Honey, $\frac{1}{2}$ lb.

Alum, $\frac{1}{2}$ lb.

Powdered Chrystalized Verdigris, $\frac{1}{2}$ oz.

Nitric Acid, $\frac{1}{2}$ oz.

This should be gently rubbed on the diseased surface with two fingers; and then, tar and armenian bole, one part of the latter to six of the former, should be put over the whole, and splinted in as before directed. When the foot loses its cankered appearance entirely, and every part looks healthy, nothing will expedite the healing process more quickly, than the annexed mixture, viz.,

Friar's Balsam, 4 ozs.
Verdigris, 1 drn.
Powdered Alum, 1 oz.
Arminian Bole $\frac{1}{2}$ oz.

This should be applied every day, but must be always succeeded by warm tar, and a small quantity of armenian bole. Let it be remarked that the foot should always be dressed daily, till it is well ; and kept free from moisture, as nothing tends to spread this disease so much as the actual contact of wet and dirt. The sole should be pared thin, and the *crust* lowered nearly on a par with the former ; in order to obtain a due degree of pressure, this being one of the principal objects we ought always to have in view. Never apply caustics when ulceration is not present, as a corrosion of half the foot, and a complete destruction of ligament and bone may be expected if you do. Should the coffin bone be decayed, which may be known by the use of the probe, gently touch the *caries* with the actual cautery, and then dress with compound tincture of benzoin, and adopt the other parts of the above treatment ; regulating or choosing your applications according to the character or extent of the disease. Moderate exercise would be of service, if it can be chosen, so as not to expose the foot to moisture ; and should the patient be subject to constitutional impurities, or what are commonly called *humours*, an occasional purge with the subsequent use of a few alterative medicines, will be found very serviceable. It will not be necessary to enlarge any further upon this

subject, as nothing less than repeated opportunities of seeing this disease, can enable the practitioner to fully understand the treatment of such an obstinate and vexatious disorder. I have only to observe that the foolish and empirical cry of *this* receipt, or *that* receipt being excellent, is grossly, absurd, and ridiculous. Nothing less than practical ability, can form an adequate and correct standard in our treatment, and unless we are guided by this principle, we must certainly fail in the result of our exertions.

QUES. *What are* CANKERS IN THE MOUTH?

ANS. They are on their first appearance, very small white specks, which degenerate into little ulcers, that eat away, so to speak, the substance of the tongue and lips, and cause very great pain. I have known some horses reduced nearly to a skeleton through them. They originate from the foul state of the stomach, and require constitutional treatment at first, such as a mild dose of physic, and afterwards a course of alterative medicines. The best *local* remedies are, first to lightly pencil the cankers, avoiding the sound surface of the tongue, with the sublimate mixture recommended under the head ulcer.—(*See Ulcer.*) Having applied that once or twice, gargle the mouth with the following excellent mixture, viz.,

Verdigris, $\frac{1}{2}$ oz.

Honey 8 ozs.

Spirits of Wine, 4 ozs.

Vinegar, 8 ozs.

Alum Powdered, $\frac{1}{2}$ oz.

Water, 4 ozs

This is very useful for almost all diseases in the mouth.

QUES. *What is a CAPSULAR LIGAMENT?*

ANS. A capsular ligament is natural to most joints, and is intended to prevent the escape of *synovia*, or *joint oil*. The slippery medium, called *synovia* lubricates the articular surfaces of the joint, and prevents their actual contact upon each other; to secure this protecting principle, nature has provided a *capsular ligament*; which ligament encloses the whole joint, but is often by some accidental cause or other divided, and then it constitutes that dreadful kind of inflammation, which arises from an *open joint*.

QUES. *What is a CARIES, and how would you treat it?*

ANS. By the term caries, we are to understand a decayed, or mortified state of the bone. The periosteal covering of all bones, being endued with considerable organization; by which term I mean that they are plentifully supplied with blood vessels, and also nerves which must be considered as the medium through which their vitality is kept up. Therefore if they receive a blow, or a bruise, or if even ichorous and indigested matter be allowed to remain on their surface, the death of the *periosteum*, or immediate covering of the bone, must follow; and consequently, an exfoliation of dead bone takes place, before the contiguous parts can be sound. When a caries is present, it is easily known by an examination with a probe, when it will give a kind of resisting feel to the

hand ; if so, apply the actual cautery, or hot iron to the denuded surface of the bone only, and afterwards apply a small pledget of tow, well soaked in tincture of aloes, or in friar's balsam. This will generally soon cause a separation of decayed bone from the living, and the healing process will begin immediately ; sometimes the diseased bone is so deep, as to be beyond the reach of the hot iron, or rather, so as to render its use impracticable under such circumstances ; should this be case, cut down with a bistoury, or sharp penknife, till you enlarge the orifice to allow a vent for the discharge of confined matter, and are able to get at the caries easily with the actual cantery. If this method however, should fail, which is seldom the case, try as the last resource, tincture of euphorbium and friar's balsam, equal parts, injected into the sinus to its very bottom, till the bone is covered, after which it will heal itself.

QUES. *What are the CAROTID ARTERIES ?*

ANS. Two large vessels, one on each side of the neck, situated immediately under the jugular vein ; they proceed from the *anterior* portion of the *aorta*, and bifurcate just at their entrance into the chest. Their office is to carry blood to the brain, where they ramify into innumerable small branches. I have often in my *post mortem* examinations, been led from curiosity, to dissect the cellular substance round the neck vein, and by following up the dissection, have found these arterial channels in their natural situation.

A little lower down the recurrent nerve may be seen; these important parts being so near the common place of bleeding, I would advise the junior practitioner never to bleed *too low down*, for fear he should wound them.

QUES. *What is CARTILAGE?*

ANS. Cartilage is that tough, white, and elastic substance called *gristle*, it is not so firm and hard in its texture as bone, but is closer and harder than either tendon or ligament. There are many mechanical advantages afforded by the existence of cartilage, which it may not be unnecessary for me to define. For instance, the ears were they not kept open by means of this substance, would not be able to collect from the air so many and diversified sounds as they do; and therefore the animal, without such a provision, would be deprived the use of one very important channel of sensation. Another advantage afforded by cartilage, is that the nostrils would, were it not for their being partly cartilaginous, inevitably collapse, and thereby prevent the regular and successive inspirations of air, and consequently cause some serious derangement in the respiratory process. Another, and perhaps a still more striking benefit arising from cartilage is—it prevents, that is when *articular*, the attrition of bone upon bone, and thereby secures the joints from that dreadful irritation, which would ensue from their being in actual contact. Every cartilage is covered by a membrane called *perichondrium*, this membrane is supposed to supply

it with blood and give it organization. It has been thought by some, notwithstanding this circumstance to be inorganic, but from several facts, drawn from much physiological enquiry, and frequent anatomical observations, we must certainly admit the existence of nerves and blood vessels in a small degree ; they are subject to ossification, or the conversion of their substance into bone, which may be known by an examination of *anchylosed* joints, wherein there is a complete obliteration of cartilaginous texture, and their *articular* surfaces are glued together by osseous matter.

QUES. *What is CATARRH ?*

ANS. Catarrh is a disease of much more frequent occurrence in the autumnal and vernal seasons, than at any other time of the year. It may be said to be in its *first* stages, an inflammation confined to the *pituitary*, or nasal membrane, but it generally extends to the *fauces*, or mucous membranes of the throat. Here, it shows itself by a swelling of the submaxillary glands ; sometimes however it is so violent, as to bring on a high state of inflammatory action, accompanied with shivering fits, quick pulse, and other characteristics of constitutional derangement ; and in some particular cases, it assumes a very malignant and epidemic form, on account of which, it is then termed *influenza*, distemper, and malignant *catarrh*. I must here remark, that catarrhal fever takes on a specific character, altogether different to other cases of mere *symptomatic* fever ; that is,

a remarkable prostration of strength ensues, so quickly after its commencement; whereas, in fever arising from *organic* inflammation, immediate debility is seldom or never the result. Sometimes, the inflammatory action is in a great measure confined to the membranes of the mouth, and sublingual glands, when it constitutes what is technically called *stynanche tonsillaris*. At other times, it is principally directed to the larynx, or wind-pipe; when violent coughing is the effect, it is then named *cynanche laryngealis*, or *trachealis*, not that this causes any alteration in the treatment required; I merely notice this circumstance, with a view to shew the various forms in which catarrh, as a disease, presents itself. Sometimes, it extends to the *bronchia*, or the two first branches of the wind-pipe, when it constitutes what is technically denominated *bronchitis*, which is no distinct disease of itself, but rather an aggravated state of the former; in short, so diversified and anomalous are the symptoms which occasionally show themselves, that nothing less than practical observations, can enable the practitioner to distinguish them. Respecting the theory of catarrh, I should impute the superabundant secretion of *muco-purulent* matter about the *glottis*, or opening of the larynx, to an increase in the supply of blood to that part, and the formation of *pus* to a change in the action of the secreting vessels; but the cough I should ascribe to the morbid excitability of the laryngeal membrane. In reference to the *causes* of catarrh, I differ

materially, from those ridiculous and untenable notions entertained by grooms, and *stabularians*.

Relative to the manner in which this disease is produced, it may not be improper to make a few observations,—viz. many persons, particularly the above mentioned characters, have an idea, that *cold* air is the chief, indeed *sole* cause, that is *exciting* cause, but a little reason will soon evince the fallacy or extravagance of this opinion. It is a well known fact, that horses which *lie out*, as it is commonly called, or are living in a state of nature, having the benefit of pure air, seldom or never have this disorder, that is, unless they are deprived of a shed, to shelter them from *cold rains*, which suddenly check the perspiratory process, and will bring it on. This latter circumstance however is rarely included in their list of causes, but the whole *stress* of injuriousness is exclusively thrown upon *cold air*; I readily admit that any *sudden* transition either from cold to heat, or from heat to cold, will generally produce it; but I am inclined to believe that the *former* extreme is far more likely to occasion its appearance than the *latter*. In proof of which, horses slightly affected with catarrh have been turned out to grass, or field, and have shortly recovered without the help of any medicine, and as I have before observed, they seldom have it at all while they remain in that situation, but if they are brought into *hot* stables they quickly suffer from the effects of a heated temperature, and become the subjects of this disorder. Indeed we may sum up our

remarks on this point, by referring the inquirer at once to the *abodes* of catarrh; let him go to a number of horses living in the full enjoyment of pure, healthy, and atmospheric air, in connexion with other advantages of a state of nature, and he will not be able, in all probability, to find out one in the number with this affection, even in the most unfavourable seasons of the year; but let him on the contrary, visit the groups of horses clustered together in hot, foul, and unventilated stables, breathing the noxious vapours of their litter, besides the impurities of each other's breath, or imperfectly oxygenated air; and it is more than probable that he will witness several of them coughing, sneezing, running at eyes, and affected with sore throats, and other prominent symptoms of this prevalent disease. Perhaps, it will be better to close our remarks on this part of our subject, by just giving a brief summary of the causes most generally productive of the present complaint, viz. *obstructed perspiration* which arises from drinking cold water too freely when *hot*,—standing in such a state greatly exposed to a current or draught of air,—an imprudent washing, or plunging the animal into a river, when heated from violent exercisc. I have known some ignorant fellows, daringly *swim* their horses in a river, when their bodies have been in a complete *lather*, from excessive perspiration; the consequence of which has been a *chill*, as they term it, or a universal stiffness of the external muscles,—or inflamed lungs, or a violent cold; and other morbid effects; a sudden

change from *cold* to *heat*, or *heat* to *cold*, particularly the former, will frequently produce it, a constitutional liability to take the disorder at that time may probably be the cause in some instances, or there may possibly, though I rather question the correctness of the opinion, be a peculiar *something* in the state of the air, during the spring and autumn, which is singularly calculated to produce it. These are most of the common causes of this complaint, but I am persuaded, that an increased temperature of the stable very materially disposes the animal to take it; as much, or perhaps more, than even obstructed perspiration.

QUES. *Give me a description of the plan of treatment, required in this disorder, during its various stages?*

ANS. It requires no ordinary share of practical judgment, to regulate the *diversified* system of treatment so generally necessary in this disease; if the patient be in good condition, or rather a plethoric subject, and the pulse be very quick and strong, and the animal has not been bled, or the disease be in its infancy, it will be proper to bleed from three to four quarts, unless he faint before its abstraction; then blister the throat extensively, and give the following fever laxative, viz.,

Barbadoes Aloes, from 1 to 2 or 3 drms.
Antimonial Powder, 2 drms.
Liquorice Powder, $\frac{1}{2}$ oz.
Honey to form 1 ball.

Repeat this every day, till the bowels are moderately open. Injections of linseed infusion, or

warm thin gruel, may be thrown in as clysters, to assist the laxative in its operation. Mashies also and warm water should be given to further this object, and if the horse be ~~very~~ weak, and staggers when he walks, some nice tepid gruel should be horned down, or offered to him in the pail, and should difficulty of swallowing prevail much after the use of the blisters, linseed tea, or an infusion of that seed will be found very useful in his mashies, or given with a horn. Should the membranes of the mouth be much inflamed, gargle them well with honey and vinegar, equal parts simmered together, and always endeavour to bring the nostrils to a free discharge of matter, by repeated fomentation, taking care to prevent the evils of *evaporation*, by immediately after covering the head and neck with a comfortable hood, and the whole body with a rug, or body cloth. If fomentations be objected to, *hot* mashies put before him in the manger must be depended upon instead, for nothing tends to prevent thick wind, roaring, and other unpleasant consequences of catarrh, so much as bringing the mucous membranes of the nose to a copious discharge of matter, while they are in their inflamed state. When the above medicine has opened the animal's body, the following ball may be given, and repeated daily for four or five days, with very good effect, viz ,

Nitre, 6 or 8 drms.

Tartarized Antimony, 1 or 2 drms.

Camphor, 1 drms.

Linseed Meal, $\frac{1}{2}$ oz.

Honey to form 1 ball.

When the febrile symptoms begin to abate, and the patient though very weak, is looking more brisk and lively, half an ounce of powdered chamomile, and two drachms of peruvian bark, may be added to half of the above ball, and if too large to give at *once*, cut in two and give a piece at a time. A proper attention to these directions, with a due regard to the animal's diet, exercise; &c.,—will generally restore him to his former health and vigour; I have found good carrots, a little sweet hay, and a few malt mashes, the best restorative food that can be given. It will sometimes occur, after all inflammatory and fever symptoms have subsided, that a chronic irritability of the laryngeal membrane still remains, and the horse coughs at every sudden motion, and very often from the stimulus of keen air; there is no better remedy for this than repeated blisters, followed up by a few laxative alteratives; some recommend in those cases, tartarized antimony, powdered squills, opium, and other similar medicines, but these do not appear to be equal in efficacy to the former, though they doubtless will be found of some service. Another, and not an unfrequent termination of this disease, is shewn by a peculiar discharge of glutinous or *gleety* matter, distilling from the nostrils, accompanied by an emaciated state of the animal's frame; this generally terminates in *consumption*. The discharge I ascribe to a chronic, or rather *morbid* inflammation of the nasal membrane; and the debility, or emaciation, I impute to the imperfectly performed functions

of the lungs. I have seen many cases similar to this, and have been remarkably successful in my practice, that is when the disease had not gone too far. I attribute the success of my treatment in a great degree to the exhibition of the following balls, every other day :—viz.

Sulphate of Copper, 10 drms.
 Tartarized Antimony, 10 drms.
 Calomel, 3 drms.
 Powdered Aniseeds, 4 ozs.
 Opium, 3 drms.
 Linseed Meal, 2 ozs.
 Oil of Aniseed, 2 drms.,

made into ten balls with honey. It is astonishing what very evident advantages have resulted from their administration ; I have known horses sinking under the last stages of atrophy, recover from the use of them, when all other medicines had totally failed, I would therefore recommend them whenever any symptoms of phthisis, or consumption present themselves, they being the most effectual class of medicaments we can have recourse to.

QUES. *What is* CELLULAR MEMBRANE ?

ANS. Cellular Membrane is that substance which lies between the *fel* and the *flesh*, or in more refined terms, the skin and the flesh ; it is not however confined to those parts, for there is scarcely any part about the body without it. We find it, by microscopic observations, entering the composition of the most compact substances, even the arteries and veins ; but its most distinguishing character, speaking anatomically is, that it is

the principal constituent portion of every muscle, for even in the smallest *fibrillæ* we find it connecting them together, to form a fasciculus, or small muscle, and by a more extensive union of parts a complete muscle. But to define it more clearly, I will divide it into two parts ;—viz. *reticular*, and *adipose*. The reticular membrane, exists in greater quantities about the ribs and breast, than in any other part of the frame, it is also very plentiful about the groin and thigh, which may be known by inserting a rowel in those places ; a most remarkable peculiarity connected with its texture, is, that it has numerous *cells*, or cavities, which cells freely communicate with each other ; a fact too demonstrable to need any proof. It may however be known by the inflation of air in the carcass of a calf, sheep, &c., a practice very common among butchers. It may further be proved by *emphysema*, which is the admission of air in the cellular membrane, in consequence of a wound ; its existence is known by a *crackling* sensation, when the contiguous skin is touched. It may also further be proved from cases of *extravasation* arising from a blow, or any other mechanical injury ; we invariably find the cellular membrane under those circumstances, full of extravasated fluid. I have on some particular occasions, discharged, by means of the lancet, not less than a pint of it. This is sufficient we conceive, to show that those cells communicate with each other. We will now, but very briefly notice the *adipose* membrane, this is somewhat different to the *former*,. Inasmuch

as the cells of the adipose membrane, do not communicate with each other, but are perfectly circumscribed; did they thus communicate, as is the case with those of the *reticular* membrane, the most inconvenient consequences must arise, that is, the legs by the gravitation of the *adeps*, or fat, would become distressingly loaded, or surcharged, which circumstance would unavoidably prevent, and that in no ordinary degree, the very swift powers of progression with which the horse is endued. In short this remarkable peculiarity in the structure of the *adipose* membrane of the horse, and many other animals of speed, gives them a *natural* advantage, most singularly favorable to certain exertions, absolutely required of them through every stage of their laborious life.

QUES. *What have you to advance in reference to that disease called CHILL?*

ANS. The term *chill*, is the phrase most commonly used, to denote or express the disease now under consideration; but it is evident it can only mean the *cause* of it, which consists in the animal being exposed to a current of cold air, or plunged into a river, while in a state of extreme bodily heat; the cause therefore, is here very improperly put for the effect, or the disease itself. It would be more scientific, perhaps, yea more correct, to designate the present complaint by the term *acute rheumatism*; however, as the former is the more popular, or rather more usual expression for this affection, we have noticed it under that name.

This disorder is not merely the result of checked perspiration, but also of muscular, or nervous exhaustion, an assertion clearly proved by notorious and every day facts ; post and stage horses are the most frequent subjects of this attack, and this is to be attributed, in a great degree, if not wholly, to the immoderate and extremely laborious exertions, to which they are so often put ; they are compelled by dint of whip or spur, to go at the rate of ten or twelve miles in the hour, and that too, in the hottest seasons of the year. This is not always the fault of the driver, but is very often done to gratify the cruel caprice of unfeeling stage travellers, who care not, either for the sufferings of the abused animal, or the interest of the proprietor. However to the point : this truly fatiguing and enfeebling mode of labour, connected with the increased temperature of the weather, are the two grand exciting causes which bring about the disorder. The muscular power is hereby deranged, or enfeebled, and they, that is the muscles, receiving their vital principle in successive portions from the brain, must, if their wants be quick and urgent, ultimately sink or exhaust in vigor, from that organ being unable to supply them with sufficient *sensorial* energy, consequently the lungs become excited, and the whole *arterial system* disturbed, and a congestion of imperfectly oxygenated blood about the heart is the result ; all of which is the consequence of an inability to absorb enough of the living principle from the air, and a general diminution of the nervous influence.

I have known horses, under those fatally injurious circumstances, fall down in their harness and die almost instantaneously. It sometimes occurs, that inflammation *falls down in the feet*, after the patient has partly recovered from exhaustion, or the animal is attacked with *acute founder*. At other times, it seats itself about the lumbar muscles, when it produces symptoms similar to those of a horse that is *chinked*, as it is called ; it also not unfrequently happens, that a high degree of inflammation takes place in one of the hind legs, in consequence thereof, producing *abscesses*, by which means the distended vessels relieve themselves ; at other times it brings on *pneumonia*, or inflammation of the lungs, which is almost sure to be fatal, under such circumstances. I have also witnessed nephritic inflammation in its most violent forms ensue, and wholly from the *shock* sustained by the nervous system. This shows the cruel impropriety of driving horses hard, at any time, but more particularly in the summer ; because it must of necessity follow, that inflammatory action will in some shape or other show itself. The treatment must be regulated according to circumstances ; if pneumonic symptoms present themselves, treat as under the head pneumonia, or inflamed lungs, which see ; the same by *acute founder*, *nephritis*, *phlegmonous inflammation*, &c. ; but above all, let it be noticed, that bleeding, with cold air and clysters, assisted with mild laxatives, and then with fever medicines, (*see fever*,) are in this disease the grand essential remedies, but the bleeding

must not be commenced till the urgency of the breathing, is in some measure subsided. I make this remark because I consider it absolutely necessary. I have had cases of this kind during their *first* occurrence, in which I have reason to believe it would have been almost immediate death, to have bled at that time; such was the generally depressed state of the nervous energy, I have therefore ordered the horse to be kept in a roomy, cool stable, till he has partly cooled himself; I have then given him one ounce of nitrous æther, with two drachms of oil of juniper, and half an ounce of tincture of opium, mixed in a pint of good, but not warm ale. This has restored the lost energies of an exhausted stomach; the breathing has in a short time become tranquil, and the animal has perfectly recovered without bleeding. I would not however advise, that this plan of treatment be adopted when *re-action* has taken place, but rather the one above recommended.

QUES. *What have you to say relative to that disease called CHOLIC?*

ANS. The cholic now referred to, is generally called *flatulent cholic*, or *gripes*; it is a very frequent disease among horses, and it may be said to consist in a spasmodic contraction of the small and large bowels, though it is sometimes confined to a small track of intestine, not extending its action over the whole of the intestinal canal; on some occasions a difficulty in *staling* manifests itself; this I impute to a spasm on the neck of the bladder.

This complaint produces the most acute pain, as may be known by the following characteristics,—viz. ; a continual pawing with his fore-feet,—striking the belly with the hind-feet,—lying down, and getting up again, and breaking out in a profuse perspiration ; but what is still more remarkable, the horse endeavours to keep upon his back, when down, that being a position which seems to give him the most ease. It is very necessary to distinguish this disorder from *enteritis*, or inflammation of the bowels, as the treatment that is *proper* to one, would prove *injurious* if not destructive to the other ; the marks distinguishing common cholic from the one just mentioned, may be glimpsed at in our present description, but for a more minute and discriminating definition of the symptoms by which the spasmodic differs from the inflammatory cholic, I would refer you to the subject *intestines inflamed*, which see. The following are a few of the discriminating signs, viz. there is not that *thread-like* beat in the pulse, as there is in inflammation of the bowels, but it is *full* and strong, though sometimes quick. The other symptoms are the absence of fever, and the non-existence of coldness in the extremities, which with the above characteristic prove it to be a mere spasmodic irritation of the intestines. As for the *causes* of cholic, suffice it to say, that drinking cold water when the horse is heated, stands foremost ; another cause is the eating of tare straw, peas, &c., and green meat will not unfrequently produce it, particularly if it has been

cut some time, and is grown sour, or is eaten voraciously ; the latter kind of food by a principle of fermentation generally forms a considerable quantity of air, and consequently brings on what is called *tympanites*, or wind in the stomach and bowels. I once had a case that came under my care, in which the tympanitic state of the bowels was so alarming, as to induce a fear of immediate rupture of the intestinal coats ; I therefore proposed, as a last resource, having tried carminative medicines, and other means, to introduce a trochar between the last rib and the bone, called *ilium* ; I confess I feared the results, knowing the internal structure of that part, to be different in the horse, to what it is in the ox ; but being persuaded the animal would soon be dead if I did not, either from the above mentioned cause or from suffocation, I obtained permission to do so, and as soon as the operation was performed, an immediate disengagement of confined air took place, and the patient though sinking as it were, under irritation, was relieved almost instantaneously. It is true, there were some slight marks of peritoneal inflammation followed from the puncture, but it was soon subdued by bleeding, and other proper treatment, and the subject very shortly got quite well. I make use of this reference, merely to shew, that spasm may be generated, by taking into the stomach such food as is apt to ferment. Sometimes cholic is brought on by a partial stricture of the small *guts*, thereby preventing the easy propulsion of intestinal matter ; and were it not for the atten-

uation of the excrement brought about by purgative medicine, the *forces*, or dung never could pass, and consequently the patient must die. I once had a case similar to this, and though I persisted in giving opening drenches for three days, I could get no passage, and therefore the horse died; by *post mortem* examination, (I mean by this term, examination after death,) I found seven or eight strictures, not *partial* but *total*; had they been only partial, I feel confident the medicine would have *forced its way*, and the animal would have recovered.

QUES. *Having noticed the symptoms and causes of the present disorder, give me a description of the treatment you would adopt?*

ANS. I would first direct that the animal be bled, and from three to four or five quarts be taken away at once, according to the age, strength, &c., of the patient; I should then give him the following anti-spasmodic,—viz.

Powdered Ginger, 2 drms.

Camphor, 2 drms.

Powder Opium, 1 drm.

Oil of Peppermint, 15 drops.

Powdered Caraways, $\frac{1}{2}$ oz.

Venice Turpentine enough to form 1 ball.

It must be made as soft as possible, yet so as to allow of being given in the form of a ball. This is done to admit of the speedy solution of its contents in the stomach; if it be too large to be swallowed at once, cut it in two, and then give it, offer a little warm drink to the horse immediately,

in order to dissolve the ball quickly. Some recommend the administration of medicine in the shape of drenches, made of sweet spirits of nitre, oil of peppermint, tincture of opium, and others mixed in a little ale or gruel; but after frequent and repeated trials, I have found the former prescription almost a *specific*, particularly when the bowels have been relaxed. I ought not to omit, that I always give clysters, and order the belly to be well *wisped* by two men, which frequently affords great relief. I feel persuaded that no composition, generally speaking, is better calculated to relieve than the one I have recommended; but let it be observed, that some degree of practical judgment is necessary in this, as in other diseases; in a day or two after the symptoms are removed, it will be necessary to give, some anti-spasmodic ball to prevent a *relapse*. To prove the utility of this system of practice, I will refer to a case, in which its good effects were very strikingly demonstrated; viz., I was sent for to a horse that had been eating pea straw very greedily, this gave rise to spasmodic cholic, which lasted ten hours before my employer sent for me, I was therefore fearful, inflammation had begun to take place; however, I bled him, clystered him, and gave him an anti-spasmodic, in the form of a ball, which completely removed all the symptoms. I also left another dose to be given the next day, which effectually prevented any return of the disease, although he resumed the eating of pea straw, &c., as usual. I merely refer to this to

show, that the complaint, would in all probability, have returned, had it not been for the *corrective* or anti-spasmodic virtues of the above ball ; I would therefore recommend its use, as being a very valuable and efficient *preventative*, in all cases of spasmodic irritation of the bowels. Let it not be thought, that I approve or allow the dangerous and unjustifiable practice, of giving pea straw and other such like offensive trash, so soon after an attack of spasm ; no, so far from that, I would rather recommend that warm mashs be given, and other digestible food, with chilled drink, for two or three days afterwards ; but still I would give the ball to prevent any bad consequences, that might arise from inattention to his diet, by the groom, or horse-keeper, who are generally too careless about these things, or too *knowing* to be dictated to.

QUES. *Can any thing be done by way of remedy, in cases of CONSUMPTION ?*

ANS. It depends upon the extent to which the disease has been allowed to go ; if the lungs are ulcerated, or the hair of the mane or tail drop off, and the animal's breath is very offensive, and other fatal symptoms present themselves, the case is quite hopeless ; but if the disease be not too far gone, the following balls will be found, (that is with proper management, with regard to diet, &c.) of considerable efficacy,—viz.

Blue Vitriol, 12 drms.

Tartarized Antimony, 12 drms.

Opium, 4 drms.

Camphor, 2 ozs.

Powdered Aniseeds, 6 ozs.

Oil of Aniseeds, $\frac{1}{2}$ oz.

Linseed Meal, 6 ozs.

Honey to form 12 balls.

Give one every other day, and let the animal live well. If the subject be able to bear it, it would be prudent to give a mild mercurial purge, previous to the use of the above medicines.

QUES. *What are CORNS, and how are they produced?*

ANS. Corns are of very common occurrence among working horses, particularly those whose habits of living, and mode of labour, are more artificial than others. They consist in a diseased state of the heels, in which some small vessels are ruptured, and blood is extravasated or effused between the *sensible* and *insensible* sole. Those of the fore-feet are more frequently the subjects of this affection, than the hind ones, this is owing not only to the naturally superior strength of the latter, but also to the repeated concussion and pressure which is thrown upon the former. This disease is generally confined to the *inside* heels, a circumstance partly attributable to the natural thinness of their horny texture, which increases the tendency to "*approximation*," or as the smith generally terms it "*wiring in*" of the horny heel; this wiring in, causes an undue pressure upon the *sensible* heel, and not unfrequently produces very troublesome corns. Not that we are to reprove the author of nature, for this natural formation of the inner heel, for undoubtedly the

design was good, and they were intended by their elastic qualities, to prevent the injurious effects of concussion, but still by the abuse of artificial means, they may, and do become increasingly liable to contraction, corns, and other morbid results, which would probably never occur, were not those artificial means continually called into action to produce them. It may not be unnecessary to enumerate a few of the leading causes, that concur in the production of the present disease; and here we would observe that thick heeled shoes, are exceedingly conducive to its appearance, they are injurious even to feet with strong heels, but are extremely so to weak heels, which can hardly bear the superincumbent weight of the fore quarters, with the lightest made, and best constructed shoe; much less are they able to endure the tremendous pressure of a piece of iron, whose very make is such as to deeply indent the horny substance of the heels, and cause the most exquisite pain. Again, what are called *calkins*, or the heels turned up, are frequently used in shoeing some horses, particularly dray and waggon horses; they are supposed to give the animal more "*footing*," when engaged in a strong *pull*, or draught, but this advantage, which may only be imaginary, cannot compensate for the evils they occasion; they may be allowable, perhaps, in frosty weather, to prevent the horses slipping, but for general use, they are highly objectionable; they are injurious because they produce an uneven, bearing upon the foot, and also deprive the frog of

that salutary portion of pressure, for which nature designed it, and they preclude the possibility of its taking a part in that weight, which is necessarily thrown upon the foot in the act of progression. Some degree of pressure appears absolutely necessary, to induce the proper growth of the frog, and to a continuance of its natural and healthy functions; hence, appear from a privation of this principle, thrushes, and other consequent evils. These are a few of the causes that unite in the production of corns; but it must not be forgotten, that there are other connecting circumstances which also tend to produce them, such as narrow heeled shoes; the accumulation of gravel and dirt between the horny heel and that of the shoe, which is owing to the long wear of the latter upon the foot, by means of which, it often becomes completely imbedded within the "*vacuity*," or space between the bar and the crust, thereby bruising the *quick* underneath; neglecting to remove the horn of the "*acute angle*," just referred to, before the shoe is applied, may also be considered as a superinducing cause; indeed, shoeing at any time, however necessary it may be, to enable that noble creature the horse, to subserve the interests of man, and however well it may be performed, or conducted, has a direct tendency to destroy the expansibility of the foot, and produce disease in some form or other.

QUES. *Can any remedies be adopted for the removal of corns?*

ANS. Yes, if they have not been very long established, if otherwise, the remedial means can

only be palliative. Should there be merely an extravasation of fluid, and no formation of matter, nothing more need be done than paring away the horn, covering the diseased heels, and then applying a bar shoe, so as to prevent the possibility of their being borne upon. This remark is made with all due deference to certain veterinary writers, of acknowledged superiority in their profession, who recommend the use of muriate of antimony to promote the absorption of the extravasated fluid ; but in all the cases I have seen of this kind, (and I have seen many,) I have generally found this practice altogether unnecessary. The mere efforts of nature, will effectually accomplish this object, provided she be allowed her proper course, and is not interrupted by the interference of undue pressure upon those parts. Let it then be strictly observed, that all the medicinal or local applications we can possibly use, will be of no avail, without the help of proper *mechanical* treatment ; I would therefore suggest, that nothing be done in the way of dressing, before the horn, covering the heels is cut away, and a proper shoe applied ; should the frog be so small as to prevent the shoe from bearing on it, I would rivet a piece of stout leather upon the bar, so as to bring the shoe and the frog into greater proximity. I must also remark that the shoe should be beaten out thinner opposite the diseased heel, than in the other parts of it, or else the horn will grow down to the shoe, and produce lameness again. Smiths generally express this act of thinning the shoe at the part above mentioned, by the word "*scamfering*," a term

whose etymology, or derivation, I must confess, is beyond my knowledge; although its meaning is perfectly familiar to me, from its very frequent and repeated use. This particularity in the form of the shoe, is of no small importance, and the cure much depends upon it; seeing, as we have before suggested, that the mechanical part of the treatment must be judicious, or every other expedient we may be disposed to have recourse to, will prove inefficient and unsuccessful. It is a custom with some persons to have the *corns*, indeed, both the heels entirely cut out, the quarters rasped thin, tip shoes put on, and the horse turned out to grass, till the heels grow down again. This plan of treatment I must allow to be the best, if the patient can be spared, because new horn descends from the coronet, and the heels that before were thin and imperfect, often become stout and strong. If supuration however has taken place, and the matter has extended itself between the sensible and insensible sole and laminae, the *under-runings* must be removed, and the foot wrapped up in a warm emollient poultice for two or three days, previously applying friar's balsam to the corn, and a pledgit of digestive ointment over the whole. Repeat the dressing every day, and should a fungous excrescence appear, or the "*vein rise*," as some term it, it will be necessary to apply some mild caustic, as spirits of wine, and the mixture for ulcers, equal parts, (*see ulcers*), till it is reduced, after which, tincture of myrrh and powdered alum, three parts of the former, to one

of the latter, may be used with considerable advantage, and will soon heal the part. When the poultices are discontinued, a bar shoe may be applied, and after the corn or sore is healed, tar and hogs lard, an equal portion of each, well mixed should be put upon the heel, in short the whole of the foot; which will materially promote the growth of horn. I should have suggested in my previous remarks, that the quarter in which the corn exists, must be rasped rather thin to prevent any lateral pressure upon the injured parts, and the sole also should be thinned with a drawing knife, to favor the effect of the poultices, and give a proper elasticity to the foot.

QUES. *What have you to advance concerning*
CHRONIC COUGH?

ANS. This disorder generally speaking, is the result of ill-treated or neglected catarrh, or cold, though sometimes it arises from bad feeding; the only method of treatment likely to succeed, is, to blister the wind-pipe extensively, and to give linseed tea or mash, carrots may be occasionally given as food, and the following balls administered, one every other day, giving a mild dose of physic, previous to their administration; viz.—

Gum Ammopiacum, 2 ozs.
Squills, 6 drms.
Calomel, 2 drms.
Aniseed Powder, 3 ozs.
Pimento, or Allspice, 2 ozs.
Oil of Aniseed, 2 drms.
Barbadoes Tar, to form 6 balls.

These with proper management, in regard to the animal's drink, food, and exercise, will generally succeed ; if they however fail, the last resource is to turn him out to grass, or in a state of nature.

QUES. *What remarks can be offered descriptive of the nature, treatment, &c., of CURBS ?*

ANS. A curb is a swelling, or rather a diseased prominence at the back part of the hock. It is situated a little below the *os calcis*, or projecting bone of the hock, and may be easily discovered upon taking a lateral, or *side* view of that part, in our examination. The *exciting* causes of curbs are immoderate exertions, such as galloping up hill, pulling horses up "*short*," and suddenly "*throwing them upon their haunches*," and indeed several others ; but the *proximate* cause is an inflammation of the membrane, lining the *perforatus* tendon, or the sheath of the *perforans*, or perforating tendon ; in consequence of which, an effusion of "*albuminous*" fluid is thrown out between their two surfaces, causing the enlargement, we commonly denominate by the term curb. In some few cases we have reason to believe, from the violent inflammation and tumefaction that follow, that many small blood vessels lining the thecal membrane of the *perforatus* tendon are ruptured, or considerably torn, in which an extravasation of blood as well as lymph is thrown out ; proving a powerful source of irritation. There have been many remedies, or rather *recipes*, recommended by various persons, for the removal of this enlargement ; some of them have been honoured

with the fascinating title of *specifics*, most of which however, to say the best of them, can only be called hair destroying compositions, being composed of corrosive sublimate, vitriolic acid, or other caustic preparations, with the addition of the common blistering ingredients; I would advise the practitioner never to be led away by an empirical opinion, of their boasted efficacy, but take it for granted, that for permanent utility, no system of practice, can excel that of firing and blistering. Let it however be remembered, that if there be much heat and tenderness in the part, or should marks of strong local inflammatory action appear, it will be prudent first to bleed from the *saphena*, or thigh vein, give a mild dose of physic, and apply evaporating or discutient lotions to the swelling; after the inflammation has subsided, a blister should be applied, and the heels of the shoe elevated, or turned up, which will prove extremely beneficial, by mechanically easing those parts, which have suffered so much from extension. This is all that can be done, except it is firing, which is an expedient that very few like to resort to; nevertheless, it will be found that nothing will be of ultimate or lasting benefit without it, because it will serve as a bandage to prevent the further enlargement of the extended parts; it is true that some may object to this plan of treatment, because of the "*indelible*" marks left after the operation; I would therefore, under such circumstances, recommend the application of repeated blisters, and long rest to be

tried first. Should this however fail, the "*actual cautery*" must be resorted to as the last resource; and then I humbly contend, it will be decidedly more serviceable, (that is, if done neatly,) than many blistering compositions, whose qualities generally speaking, are such as to destroy the hair, and produce a permanent, irremediable blemish.

QUES. *What is the meaning of the word CUTIS?*

ANS. By this term, we are to understand, the *sensible* skin, in contra-distinction to the *epidermis*, or *insensible* skin; this is a mode of phraseology, which medical persons frequently adopt, to give distinction to the offices, diseases, &c., of those two parts. The *epidermis* is the most external part of the skin, and has numerous little openings, or orifices, commonly called "*pores*," for the emission of that well known cutaneous exudation, called "*sweat*." The pores originate from the cutis, but still they perforate, or pass through the *insensible* skin also, and thereby serve the purpose just mentioned. It is this part, that is raised into "*bladders*," by the vesicative actions of blisters. However, to return to the *true* skin; we have only to observe, that it is extremely elastic, and is the medium through which the hair is produced, in order to defend the animal from the inclemency of the weather, and from other injuries to which he would be exposed. It has a very striking *sympathetic* connexion with the internal viscera, particularly with the stomach; the *chronic* diseases of which, are almost invariably characterized by a

morbid, or unthrifty appearance of the hide; whence we have the vulgar term "*hide-bound*," the origin of which, generally speaking, is to be traced to that organ. Immediately under this part, lies one of the most powerful muscles of the animal frame. It is called "*panniculus carnosus*," or fleshy pannicle, and is intended to shake off flies, and other extraneous substances that may lodge upon the skin, and thereby accidentally or intentionally irritate or annoy; this is given to quadrupeds to answer other important purposes also, some of which are not, and probably never will be known by man, but are designed by the divine architect, to accommodate his creatures to the various stations which they hold in the great scale of animated nature.

QUES. *What is* DIABETES?

ANS. Diabetes may be said to be a disease consisting of an increased, and probably *morbid* secretion of urine; there is generally present an insatiable thirst in this disorder, which circumstance, is most probably owing, to the absorbents "*doing more than their duty*." There is also extreme emaciation, and very great debility, arising undoubtedly, from over absorption; now we know that if the urinary, or any other secretion, be increased beyond its natural standard, it must of necessity debilitate the subject in a very striking degree; and it may at the same time be observed, that if such a copious evacuation be not suspended, or rather suppressed by medicinal interference, the horse must inevitably sink so low as to be beyond recovery. Musty oats, and hay of bad

quality, prove one of the most common *exciting* causes of this disorder, and it is not unlikely that the too frequent exhibition of diuretic balls, may very remarkably operate towards its production. The treatment suggested by many good and sensible authors have been various, according to the character or extent of the disease. Some have recommended animal food, in the form of broths, others have advised the same in a solid form, such as a ball, others have enjoined the use of powerful *stomachics*; but the system which I would adopt is as follows, I would allow the patient but little drink, and order his food to be changed, that is, if he had been having bad hay, and musty oats, he should have sweet hay and good oats; if it originated from the excessive use of diuretics, it is probable, that small doses of aloes given in combination with stomachics, and repeated till they opened the bowels, might make a diversion from the kidneys to the intestines, and thus produce the very best results; and even if it arise from injurious food, a drachm or two of aloes, with cordial medicine, cannot do any harm, but may materially improve the functions of the digestive organs, and thereby prepare the way for the more successful operation of the following ball:—viz.,

Peruvian Bark, $\frac{1}{2}$ oz.
Powdered Aniseed 2 drms.
Powdered Catechu, 2 drms.
Powder Opium, 20 grs.
Powdered Alum, $\frac{1}{2}$ oz.
Oil of Aniseed, 10 drops.
Mix with Honey to form 1 ball.

Should this not produce the desired effect from one dose, it may be repeated four or five times if required. This is all that can be done by way of cure in this complaint. I would therefore recommend its adoption, as being generally effectual, particularly so in the more recent stages of this disorder; remembering at the same time, that the horse should not be put to labour during its existence, but have entire rest, or be turned out to grass, and allowed a little of the before mentioned nutritious food, to restore the enfeebled energies of a debilitated system. I would just remark before we conclude this subject, that I have known diabetes sometimes originate from a *chronic* affection of the kidneys, in which a considerable disorganization of their structure has existed, and the animal has thereby rapidly sunk into a state of emaciation and death. In those cases the above medicines may be tried, but with no well grounded hope of effecting a cure.

QUES. *What remarks have you to make respecting the disease called DIARRHŒA?*

ANS. Diarrhœa may be said to consist of copious and unnatural evacuations of fœces, or excrement; its *proximate* cause is an inflamed state of the mucous membrane, lining the inner coat of the intestines, which produces an increase of the intestinal secretions, whereby the contents of the bowels are expelled, before they are duly assimilated. The *exciting* causes are diversified, one of them, in my opinion, arises from eating too much green food, particularly at that season of

the year, when it is not so nutritious, or is more "*washy*," as some term it. Another, and not an unfrequent cause, is excessive labor, the peristaltic motion is by this means improperly excited, and the contents of the bowels, undergo a too speedy expulsion; a copious ingurgitation of cold or pump water, may also produce it by chemically exciting the intestines; a stoppage of perspirative matter, or in other words, a suppression of the cutaneous discharge is a very predominating cause. This is an opinion not only countenanced by some of the most respectable veterinary authors, but is also daily proved by frequent, or repeated observations; the exhibition of drastic purges will likewise produce this disease, as their *ultimate*, though not their *immediate* effect. The latter receives an appellation distinct from the present disorder, and is technically called "*hypercutharsis*," or super-purgation, whereas the former, or the one now under consideration, is termed *diarrhœa*, being in a certain sense, a different disease. By the expression *ultimate* result, I mean that the bowels, from the use of "*strong physic*," acquire a morbid irritability, even after the operation of the purgative has ceased, which disposes then to *relaxation*, or looseness, upon the least excitement; therefore in this point of view, violent purges may be considered as pre-disposing, though not exciting causes. Having made those brief remarks on the causes, it will be necessary to notice the treatment of this disorder; some practitioners commence with the use of powerful astringents immediately,

but this I consider to be an unwise, unsafe system of treatment, particularly if the disease be of recent occurrence; it would be better, I conceive, first to administer demulcent liquids, made rather thick, such as a decoction of arrow root, or starch mucilage; these would sheath the irritated surface of the bowels, from the acrimony of the fœcal contents, and consequently act without stimulation. A quart of starch gruel may be given, with the addition of half an ounce of tincture of opium, twice or three times a day, besides the repeated use of the arrow root decoction, which will frequently remove the diarrhœa by the next day. During the former period of this disorder, it will be requisite, to supply the animal with warm thin gruel for his drink, and stiff gruel, horned down, with the addition of a little sweet hay, for his food; taking care to keep him in a warm, but properly ventilated stable, with a good bed to lay on, have his legs bandaged, and a cloth over his body; malt mashes might be found serviceable for a short time, but grass should never be given him, till he is quite recovered, it being calculated to irritate those parts, already too much irritated. The above mode of treatment is proper in the first stage of this disease, or while the bowels are exceedingly irritable, and disposed to inflammation, but should the complaint not yield to the curative plan, we have just suggested, in the course of two or three days, and the constitution is evidently getting more debilitated, and the fever symptoms are disappearing, it will be necessary

to give the following ball immediately, and repeat till the "*scouring*" has ceased :—viz.

Catcchu, 2 drms.
 Calomel, 20 grs.
 Powdered Opium, $\frac{1}{2}$ drin.
 Prepared Chalk, $\frac{1}{2}$ oz.
 Powdered Aniseeds, $\frac{1}{2}$ oz.
 Oil of Aniseeds, 20 drops.
 Honey to form 1 ball.

Of course the same degree of attention will be paid to the animal, as in the former stage of the disease, with this exception only, he may be allowed more nutritious, or solid food, than above recommended, bearing in mind, that he must return to it gradually, till he is able to bear his original, or, wonted proportions.

QUES. *What is the manner in which* DIGESTION *is performed?*

ANS. It will not be expected that we shall notice many, at any rate all the varieties of influence and operations, that are engaged in the accomplishment of this admirable instance of animal function; suffice it to include, in our definitions, a brief description of the more prominent principles, that concur in the performance of this most mysterious and complicated process. In doing this it will be proper, we conceive, in order to render our illustrations as concise and explicit as we can, to divide the process into three distinct divisions, viz. *mechanical*, *chemical* and *vital* agents. Let us first notice the *mechanical* part of this process. By the term *mechanical*, we mean the

manner in which the food, is made fit for the action of the stomach, this is brought about by mastication and deglutition; the former is what people commonly call "*chewing*," and is effected by the teeth and muscular action of the jaws. The food is gathered up by the lips, then cut down by the "*incisores*," or front teeth, and afterwards conveyed to the "*molars*," or grinders, where it is thoroughly masticated, and by the united powers of the tongue and other muscles, conducted to the *pharynx*, or top of the gullet, from which by the contraction of the *œsophagus* it descends into the stomach. It has been thought by many, that the mechanical part of digestion does not end here, but that the stomach itself also helps to break down the food by "*trituration*;" but this theory will not altogether apply either to man or the horse, particularly the former; indeed it will not account for all the varieties of the digestive process, even in those animals whose stomachs are so constructed by muscular fibres, as to favor the comminutive action just referred to; for even the mechanical force of the gizzard in the turkey, or the strength of the mandibular stomach of the lobster, can only break down the food, but not produce the least chemical change in the gastric contents.

We will now notice the *chemical* phenomena, supposed to take place in the performance of this curious process; many and diversified have been the notions and ideas of several speculative writers, relative to these important points, a few of which it may not be amiss to enumerate. I will

may be discarded as the result of mere hypothesis. The next favourite theory, referring to this disputed point, is the doctrine of *chemical* stimulation, or the influence of the gastric juice upon the villous coat of the stomach, producing the above named sensation. The advocates of this doctrine say, that as the juice just mentioned, is so extremely powerful, as to bring the hardest and most tenacious substances under its action, it must of necessity "*gnaw*," or corrode the inner surface of that organ, and produce the most unpleasant and even painful sensation, that is to say, if proper and sufficient matter is not given for it to act upon instead; *but however specious this mode of reasoning may be, it is not conclusive enough, to account for certain peculiarities discoverable in the economy of digestion. This circumstance therefore, has led to the introduction, and even the establishment of another theory, which is the last we shall notice; namely, the doctrine of *sympathy*, or nervous influence. The defenders of this sentiment, maintain that the sensation of hunger, may be either produced, increased, or depressed by several means, totally unconnected with the gastric juice; they affirm, that the appetite may be destroyed or suspended by fatigue, or nervous exhaustion, and that such suspension may be removed, and the appetite be made almost immediately to return, by the mere stimulus of a cordial draught, which must act upon the minute extremities of the nerves lining the coats of the stomach. The same feeling of

hunger may be depressed, or taken away by various other causes, it may be lessened, in short, removed, by a dejection of spirits, or a disturbed mind, or by sudden alarm, and it may be totally destroyed by excessive pain ; even, vomiting has been produced by this cause. Horses also as well human beings, will refuse their food from extreme pain. If a horse "*pick up a nail*," as it is called, the inflammation and the agony that sometimes follow is so great, that he will loathe his food. Indeed, what is technically termed *æstrum*, or a desire for the mare, will have a similar effect upon the mare, that is, as it refers to her appetite. In short, numerous other proofs of the influence of sympathy, upon either the production or depression of this feeling, might be brought forward if required. Without therefore commenting upon the propriety or impropriety of each of those theories, let me leave them to the decision of your own mind, and refer to other connecting particulars, belonging to the great work of assimilation, or digestion.

QUES. *Is the whole of this curious and complicated process completed in the stomach ?*

ANS. No, for the stomach of the horse being so small, could not without serious inconvenience to him, as an animal of speed, contain sufficient food to supply on being digested, the rapid and increasing wants of his constitution ; the economy therefore of his digestive organs is such, that the important function of assimilation shall be matured and perfected in the intestines ; although

the contents of the stomach are reduced to a pultaceous mass called chyme, by the action of the gastric juice, still they are not thoroughly assimilated before they get to the large bowels; therefore at the pyloric extremity of the stomach, they enter the *duodenum*, or first bowel, where the pancreatic, biliary and intestinal juices commingle, to render the partly digested mass still more convertible into chyle. Here the process of chylification takes place, and it is this process that completely qualifies the food for convertibility into blood. After it has entered the small intestines, and undergone complete digestion by the combination of the biliary and pancreatic juices, it is then conveyed by a peculiar motion of the bowels called *peristaltic*, to the minute orifices of the *lacteals*, or absorbent vessels. Absorption takes place here, and the separation of the chylous from the feculent parts of the chyme, is effected by the lacteals; and this separated chyle is conveyed by those vessels into a large tube called *thoracic duct*, from which this milk like fluid is received by a vein near the heart, and taken from thence to the heart itself. Bile is a juice secreted by the liver, and conveyed by the *hepatic duct* into the duodenum, where it mixes with the chyme, and separates the nutritious from the excrementitious parts of the food; it has also another function attached to it, viz., it proves a gentle stimulus to the intestines, thereby facilitating the propulsion of the digested matter throughout the whole extent of the intestinal

canal. What may be the component parts of this secretion considered as a chemical compound, need not be noticed, because, to do this would be to unnecessarily extend the latitude of our present description, and thereby infringe upon the time and attention, that ought to be directed to other parts of this pleasing topic, which are of far more importance, than any chemical definition of an "*animal fluid*" could possibly be. After the chyle is extracted, or rather separated, the fœcal mass is expelled by means of the peristaltic motion of the bowels, and then by the sudden co-operative action of the abdominal muscles. I should have remarked, in my previous observations, that the stomach of the horse is very small, compared with his size in the scale of quadrupeds; this I impute to the celerity of progression for which he was designed, for had this organ been as large in proportion, as that of other animals, he would have been incompetent to accomplish those surprising exertions, to which he is repeatedly forced. That is to say, the stomach would then have prevented or interrupted the regular and natural action of the *diaphragm*, and consequently derange the functions of the respiratory organs. Another peculiarity in the structure of this important viscus, is that one half of its inner surface is lined with a cuticular membrane, called its insensible coat; this is a continuation of the internal coat of the *œsophagus*, and is thought by some to detain poisons when exhibited, till they have in a great measure lost their deleterious

qualities, but this notion is purely hypothetical, and therefore must be discountenanced, being doubtful, if not erroneous.

QUES. *What are DISCUTIENTS ?*

ANS. Neither the term discutient, nor the applications expressed by it, have that degree of importance attached to them in medical practice, which they had formerly. There is however a class of externally applied medicines, which have a power to remove cold and indolent swellings, but this effect, they appear to accomplish by promoting absorption, and not by any *specific*, or latent property in themselves. The theory of discutients may be difficult to explain, but their effects are frequently sudden, and remarkable; this fact I have witnessed in the removal of very large tumours occasioned by bruises, in which a considerable extravasation of blood has been absorbed in a few days. Medicines of this denomination, include vinegar in combination with spirits of wine, sal ammoniac and camphorated spirits, put together in due proportions, according to the state of the swelling; let it be remarked, however, that these kinds of applications will have no conspicuous efficacy, if the enlargement be of long standing and is totally callous; their use in such cases, therefore, must be superseded by properly applied blisters.

QUES. *What are DIURETICS, and of what use are they in veterinary practice ?*

ANS. Diuretics are a very useful class of medicines, and may be said, with the exception

of purgatives, to be the most serviceable medications in our *Materia Medica*. They are denominated diuretics, because they exert a direct influence upon the kidneys; the manner in which they operate, appears to be by powerfully exciting those organs to increased action by chemical stimulus, whereby more blood is driven to them than usual, and a consequently greater quantity of the urinary fluid is secreted. They are very suitable in cases of "*grease*," but more particularly so in anasarca swellings, where we wish to promote absorption, and thereby remove the extravasation of fluid, thrown out in the cellular substance; they are also very efficacious when combined with tonics in *ascites*, or abdominal dropsy, and if given for chronic cough, with other expectorant medicines, will be found extremely beneficial. In cases of cutaneous disease if united with antimonial preparations, they will prove of admirable efficacy, I mean in surfeits, mange, &c. In short their utility is so obvious and diversified, that there are few cases in which their administration will not be required. A variety of articles has been recommended as diuretics, a few of which I will enumerate, namely, nitrate of potash, oxymuriate of mercury, resin and common turpentine, supertartrate of potash, or cream of tartar, juniper and powdered squills, the three last mentioned are much milder than the former, and are not generally given to produce any sensible alteration in the urinary secretion; the oxymuriate of mercury although it may act upon the kidneys,

and have a diuretic effect, yet it is far too dangerous a medicine to be used for general purposes; it ought therefore to be laid aside, for the substitution of more manageable articles in its stead.

QUES. *Is DROPSY a very common disease among Horses?*

ANS. Yes, and it is either *cellular* or *internal*, the former very frequently occurs, and is scientifically termed *anasarca*; it is generally the result of constitutional weakness. In such cases it would be prudent not to adopt the depletive system, but to give tonic and stomachic medicines in combination with diuretic substances, such as the following, viz.—

Sulphate of Copper, 1 drm.

Camphor, 1 oz.

Peruvian Bark, 3 ozs.

Aniseed Powder, 2 ozs.

Oil of Caraways, 2 drms.

Venice Turpentine to form 6 balls.

If one of these balls be given daily, and a pint of good ale, with a wine glass of gin in it, be given now and then in the interim, the best effects will frequently follow; should these balls be not sufficiently diuretic, three ounces of resin may be added to them, instead of the aniseed powder. As it respects the external part of the treatment, I would recommend to puncture the skin by the lancet, or a small fleam, in several places, in order to let out the anasarcaous fluid, and then to clip off the hair, and well rub in the following liniment, viz.—

Powdered Cantharides, $\frac{1}{2}$ oz.

Oil of Rosemary, 2 ozs.

Opodeldoc, 2 ozs.

Sweet Oil, 12 ozs. Mix and apply.

It must not be forgotten, that proper attention should be paid to the animal's diet during the disease, or at least while the medicines are administered; that is, his drink should be thin oat-meal gruel, or warm water, and his meat carrots, vetches, &c., if they can be obtained, with a small quantity of good oats and chaff, increasing the proportions of the former, or oats, as the disease subsides; if it occur in the winter, keep him warm, and well clothed, but not hot. It is seldom however that this degree of attention is required, the directions are merely given in order to be attended to when circumstances of necessity may dictate. As for internal dropsy, we may say of it, that it is seldom or never cured, means may be tried, but they cannot remove the disease, however judiciously managed. If water in the chest as the result of previous *pneumonia*, be the complaint, neither tapping nor any other expedient can possibly avail, but the patient must die sooner or later. *Ascites*, or abdominal dropsy, or what is vulgarly called "*water in the belly*," is subject to similar inconveniences in the way of cure, and though means may be tried, and in one case, perhaps, out of a thousand, fortunately succeed, yet on the whole, all our remedial efforts at the very best, are but palliative, and will ultimately prove inefficacious. The adoption

therefore of proposed remedies under such circumstances may be left entirely to the choice and discretion of the owner, but cannot deserve the recommendation of the practitioner himself.

QUES. *What is an ECCHYMOSIS ?*

ANS. This term is technical, and is used to express an extravasation of blood, or other fluid, in the cellular substance ; it is however sometimes applied as synonymous with the word *thrombus*, or a small swelling, occasioned after bleeding ; if it be hot and painful, some evaporating lotion should be applied to it for three or four days, but should it feel hard and insensible, I would recommend a small piece of blister, and this will either remove it by absorption, or excite a formation of "*matter*," which if opened and dressed, will soon get well.

QUES. *What are EMOLLIENTS ?*

ANS. The word emollient is of latin origin, or derivation, and by it we are to understand any thing that is "*softening*," or soothing, and that allays irritation ; the principal emollients used in veterinary practice are linseed tea, oil, gruel, solution of gum arabic, and marshmallow infusion. They are externally applied in the shape of fomentations, but internally they are given as demulcents, to soften the parts to which they are applied, and sheath their surfaces from acrimonious matter. For instance, in cases of superpurgation, when the mucous coat of the intestines is denuded, we use them with eminent advantage, the same in nephritic inflammation, besides many

more cases which it would be needless for me now to particularize.

QUES. *What is the meaning of EMPHYSEMA?*

ANS. Emphysema in its simple and proper acceptation, signifies an extravasation of air in the cellular membrane, it is often applied to a diseased state of the lungs, called broken wind, produced by a rupture of the air cells. It is also present in the disease, vulgarly termed, "*quarter ill*" in cattle, and is very frequently the effect of a wound in the cavity of the chest. It would be needless for me to enlarge upon this phrase, suffice it to observe, that it is merely used as a professional term, to signify an extravasation of air in the cellular substance.

QUES. *What is the meaning of the term EMUNCTORY?*

ANS. Emunctory implies any part or organ whose office it is, to carry off the redundancies occasioned by the formation of new parts. It is thought by some, that what are called *humours*, or impurities of the blood, are also eliminated from the system in certain diseases, by means of the emunctories; but this is a point I do not feel disposed to dispute upon, I will therefore leave it as it is, still undecided.

QUES. *What is the EPIGLOTTIS?*

ANS. The epiglottis is a cartilaginous substance, constituting a portion of the larynx, or upper part of the wind-pipe; it completely covers the tracheal opening, while the animal is swallowing, and is thereby designed to prevent

the admission of extraneous substances into the wind-pipe. This valvular formation is concave in its internal surface, and exteriorly rather convex ; its shape is admirably adapted to close the tracheal aperture when necessary, and it is also capable of considerable elasticity. Were it not for this provision, breathing could not be performed during the act of deglutition, without immediately endangering the life of the animal ; but such is the infinite wisdom of the Great Author of nature, that he never leaves his works in any way defective, or unfinished.

QUES. *What is ETHER ?*

ANS. Both the *sulphuric* and the *nitrous* ether are occasionally used in veterinary practice, and are very valuable medicines, they will be found, if discriminately administered, extremely beneficial in a variety of cases. The sulphuric ether is more generally given in conjunction with other articles, as an anti-spasmodic in flatulent cholic, and sometimes in *tetanic* disease, or locked jaw ; it is a very powerful stimulant, and requires great caution in its exhibition, not more than an ounce, or an ounce and a half should be given at a time, and that always in sufficient dilution. I have used the nitrous ether, or the sweet spirits of nitre in doses of one ounce and a half with very eminent success in diarrhoea, or rather superpurgation, particularly when combined with about half an ounce of tincture of opium, and mixed with warm starch gruel ; in short, it will be found a very useful article in the latter stages of

fever, if given in moderate proportions, and also in many other cases that may come under the practitioners care.

QUES. *What are EXPECTORANTS, and what influence do they exert upon the animal system?*

ANS. It is thought by some practitioners that there is no class of medicaments that can be said to act *peculiarly* upon the chest, and the tracheal membrane, so as to produce a consequent expectoration; but there are others who entertain a different opinion, and believe that a "*local*" or "*specific*" influence is exerted upon those parts by the power of medicine, thereby removing the irritative mucus, by immediate action. This latter theory, I must confess, is too mysterious for me to understand, I would therefore leave it to wiser heads than mine; one thing I know, viz., that I have given expectorants, and they have materially removed the cough, and other symptoms of deposited lymph in the air passages, but whether they have acted upon the salivary glands only, as some imagine, or what particular organ or organs were put into action by them, I have not yet had any opportunity to ascertain. The articles comprehended under this title, are tartarized antimony, squills, gum ammoniacum, and others, and may be used with advantage in all those cases that evidently require their administration.

QUES. *What have you to advance relative to the organization and functions of that beautiful and delicate organ the EYE?*

Ans. The eye is so minute and complicated in its structure and formation, that an extensive description thereof cannot be expected from one whose professed object is that of brevity, throughout the whole of his definitions; I will therefore endeavour without taking a survey of *comparative* anatomy on this subject, to illustrate the principle component parts of the horse's eye. I shall begin by first noticing the *appendages*; the eye itself is situated in a cavity called the orbit, this orbit is formed of several bones, whose anatomical names, precise situations, structure, &c., it would be too tedious and unnecessary for me to detail. I will therefore refer you to some more elaborate treatise on the anatomy of the horse, for their description under the head osteology. Before we commence our illustrations of the appendages, or describe the *palpebræ*, and other external parts of the eye; it may not be improper first, to notice the *muscles* of the eye-lids, and those of the eye itself. The muscles immediately connected with the former and the latter are very important, each of which has received its name from its form, use, &c., there are only two belonging to the eye-lids, and their technical terms are *orbicularis palpebrarum*, and *levator palpebræ superioris*. The former of these is so named from the arrangement of its fibres, which are circular, and is intended to close both the upper and lower eye-lids; the latter derives its name from its office, which is to raise or lift up the superior or top eye-lid only; the two

which we have just treated upon, unitedly considered, are engaged in alternating the different motions of the palpebræ. There are also other muscles which are employed in directing the motions of the eye-ball itself, their names may be just noticed, but not their *origin* or *insertion*; indeed their *uses* need only be briefly touched upon, and that too merely to explain the phraseology by which they are described; they are classified as follows, viz., *levator oculi*, *depressor oculi*, *adductor oculi*, *abductor oculi*, *obliquus superior*, (this used to be called *trochlearis*,) *obliquus inferior*, and *retractor* or *orbicularis*. The first muscle or *levator oculi*, is so called, because it raises or lifts the eye upwards; the second, because it depresses or pulls the eye downwards; the third, because it turns or draws it inwards; the fourth, because it draws it outwards, deriving its etymology from the words *ab* from or out, and *ductus* drawn, or drawn *outwards*; the fifth is so termed partly from its direction, which is oblique, and partly from its magnitude or proportions, this may be inferred from its original name, which was *obliquus major*, and not *superior*, which meant the greater oblique; the sixth is so termed, partly because of its direction, which is oblique, and partly from its position, which is inferior, to ascertain this more clearly, perhaps it may be necessary to remark, that the *obliquus superior* has its origin from the posterior part of the orbit, and is inserted at the superior part of the eye-ball, a little anterior to the middle of the eye,

whence it is probably called superior, on account of its insertion. The inferior oblique originates from what is named by some *os anguis*, or angular bone, and by others *lachrymal* bone; because it is perforated by a foramen, or hole for the passage of the ductus lachrymalis or lachrymal duct. The last to be noticed is the *retractor*, a name given to it from its remarkable power or ability to draw back the eye in its *socket*, this does not exist in the muscular apparatus of the human eye, but is very large and powerful in the horse and other quadrupeds; it can so completely draw the eye back as to bury it as it were in its orbit; this has been evinced by certain surgical operations or experiments made upon that organ, in cases of *corneal* excrescence. It is usual in all anatomical descriptions of the eye to notice the appendages first, and then the eye itself, this is the plan we intend to pursue, but shall not depart from our former determination to be as concise as possible. Part of the appendages, I mean the muscles, have already been treated on in our previous definitions; we shall therefore first notice the *eye-lids* as possessing very great importance in the structure of the eye; they are technically termed *palpebræ*, and are divided into two kinds or parts, superior and inferior, or upper and lower, the upper eye-lid is the larger of the two, and unites with the inner and outer angles; the outer angle is anatomically called the *canthus minor*, and the inner angle *canthus major*. At the extremity of the eye-lids there is a cartilaginous edge termed

tarsus, and from this margin is secreted an exudation designed for the lubrication of the eye, and its appendages; this secretion or ciliary discharge, flows from little orifices technically named *puncta ciliaria*. The principal design of the palpebræ is to prevent the contact of extraneous matter, such as dust, &c., and also to stifle the too copious influx of light to the eye; there are other uses connected with these parts, but for an enlarged description thereof, I would refer you to some voluminous treatise, in which you will find this subject much more extensively discussed; near the outer canthus or angle, is situated a gland denominated "*glandula lachrymalis*," or lachrymal gland, the office of which is to co-operate with the other auxiliary agents in the formation of tears, or a limpid fluid designed to facilitate the various motions of the eye, and enable it to trace any object or variety of objects by chance or design presented to its view. In the inner canthus, or corner of the eye there is a black protuberant substance, whose technical term is "*caruncula lachrymalis*," or lachrymal caruncle. It is thought by some persons to be glandular, but this being a point still undecided, we will leave it, and refer to the *puncta lachrymalia*, which are little holes that form, as they unite, a receptacle for the tears, and convey them when super-abundant into a tube called *ductus lachrymatis*, or *ductus ad nasum*, this duct may be easily seen by looking up the inside or wing of the nostril, where it terminates. We forgot to notice

when speaking of the eye-lids, the *tunica conjunctiva*, which is a membrane situated underneath them, and is reflected over the *sclerotica* and partly upon the *cornea*. The use of this membrane appears to be to facilitate the motions of the eye, and by secreting a mucous exudation, to prevent the irritation that would otherwise arise from the excessive flow of tears; this membrane is said to be transparent, and is considered to be the original seat of specific ophthalmia, or a disease that will be hereafter noticed; it affords to the veterinary practitioner by its turgescient and red appearance, the most correct characteristic of internal inflammation, and it is to this membrane that he directs his attention in almost every case of constitutional derangement. We must not omit a remarkable peculiarity in the horse's eye, which is vulgarly termed the *haw*, this is technically denominated "*membrana nictitans*," and is situated in the major canthus, or inner corner of the eye, it is a membrano-cartilaginous substance, and is concavo-convex in its form, its superior portion is membranous, but its lower part, which is enveloped in fat, is cartilaginous, and gives it an elasticity of action so peculiarly necessary in certain motions of the eye; it is often seen in diseases of the above organ projecting over the eye-ball, so as to exclude in a certain degree the stimulus of light, it is designed to wipe off any offending matter or substance upon the eye, and serves the same purposes as the hands in ourselves, that is, as it

relates to the removal of dust, &c., from our eyes. We have here to observe, that many from a want of anatomical knowledge, have suggested that this substance should be excised, being, as they conceive, something not natural, but the consequence of disease; ~~but~~ this notion however specious or plausible it may appear to persons unacquainted with the structure or functions of the eye, is quite a mistake, and betrays the grossest ignorance in those who recommend it. We would therefore advise the practitioner, or veterinary student, to study anatomy very closely, lest he fall into other mistakes of a similar character.

QUES. *Having given a description of the appendages of this eye, proceed to describe its globular structure, or rather the exterior and interior parts of which its body is composed?*

ANS. Some veterinary writers commence their descriptions by first describing the most anterior membrane, or the *cornea*, they then pass on to notice the *aqueous humour*, then the *iris*, then the *pupil*, then the *chrystaline humour*, then the *retina*, then the *vitreous humour*, the *choroid coat*, and lastly the *sclerotica*, or white of the eye; others begin by noticing what they term the *parts investing* the eye, and then proceed to describe the *parts invested*; this is the plan which we shall attempt to pursue, conceiving it to render our descriptions more explicit and intelligible; in doing this it will be proper to give the names of the different tunics of the eye-ball, and then to

illustrate the more deep seated parts, of which its internal structure is composed. The tunics just now alluded to, comprise the sclerotica, cornea, iris, retina, and choroides; the two first of these are only the external coats, and merely form the exterior surface of the eye, ~~for~~ the parts investing; whereas the three latter membranes, constitute what are termed, its *internal expansions*, and are much more delicate in their texture, than the former tunics. In connexion with the aqueous humour, chrystalline lens, vitreous humour, and their capsules, or certain parts which we shall hereafter have to define, they form that important division of our anatomical definitions, which we shall treat upon, under the head *parts invested*.

Let us then first notice the *sclerotica*, this covers more than half of the eye-ball, is situated in the orbit, and is surrounded by adipose matter, and is commonly denominated the "*white*" of the eye; the fatty substance on which it lies, serves to facilitate the various movements requisite in viewing a variety of objects; this tunic is very firm in texture, and appears on examination to be tendinous, or ligamentary. It need not here be hinted that it is opaque, indeed this will be allowed on the principle of *non-transparency*, being natural to tendinous or ligamental texture; it may further be observed, that this membrane is intimately united to the cornea, and an opening may be discovered in it for the entrance of the optic nerve, it is very elastic, and its internal surface is in close proximity with one of the

internal expansions, whose appellation is "*tunica choroides*." To its elasticity and density of texture, may probably be imputed, that remarkable sphericity in the form of the eye; had it not been for this provision, the above organ could not possibly preserve its shape, because the anterior parts thereof, being so very thin and slender, must have sunk in, and the power of *concentration* and *refraction* would have been wholly destroyed. Another and probably a greater use belonging to it, is to protect the sensible parts from pressure, that is to say, the fat though soft, would, were it not for this necessary convexity in the form of the sclerotica, press upon the retina, and do considerable injury.

Let us now pass on to the *cornea*; this very beautiful membrane is the first part presented to our view when we examine the eye, it is the most anterior portion of that organ, and is convex in shape; if this were not the case, it would be impossible for the eye to collect the rays of light to a focal point, and consequently the faculty of vision would be imperfect, if not wholly annihilated. Let it however be remembered, that there are various degrees of convexity, in the form of this membrane in different animals, in order to enable them properly to adjust the focal distance of the objects they may have to view; but *some* degree of this convex shape is natural to all, or as we have before remarked, they could have no possible power to see. To prevent any misinterpretation of this remark, it should be observed,

that notwithstanding this required convexity, if the cornea be too prominent, the sense of sight becomes indistinct or confused, and a good connoisseur or judge of a horse's exterior conformation, would on this account instantaneously reject the animal, intended for purchase, considering it to be a material defect in his "*points*," or more properly speaking qualifications. It is very transparent, and thereby able to transmit the light thrown upon it, to the retina, and is highly vascular, although ancient anatomists imagined it was *inorganic*. The sentiment however of its being inorganic has been clearly confuted, for it has been inflamed, has suppurated, and depositions of lymph have been seen on its interior laminated surfaces, and these depositions have been absorbed and taken into the circulation, which could not have been the case if it were cuticular or inorganic. On examination of the eye in cases of disputed soundness, we may peremptorily pronounce it unsound, if the slightest opacity remain on its surface, or if its transparency be not perfect in every part of it, so as to reflect the image of the person in every kind of view he may take of it. This entire pellucidity of the cornea, is the only proof of its having never been the subject of opthalmic inflammation, therefore if it be in the least degree sullied in its brightness, we may justly suspect, not only its previously inflamed state, but the probability of its again becoming when exposed to the exciting cause of opthalmia, worse than ever, indeed we may fear after a

few returning attacks, the ultimate disorganization of the whole visual apparatus, or in plainer language, the final loss of all sight. We will now endeavour to describe the "*internal expansions*," and first the *iris* may be noticed; this is a muscular curtain, situated just behind the aqueous humour, and in its centre is an aperture or opening, commonly called the pupil; it is oblong in form in the horse's eye, but circular in the human, and is capable of contraction and dilatation by the power or stimulus of light; the latter by its stimulation calls into action the muscular agency of its fibres, and thereby opens or shuts the pupillary opening. The aperture of this membrane is sometimes insusceptible of either enlargement or diminution, owing to a paralysis, or palsy of the optic nerve, which constitutes the disease called *gutta serena*. This membranous curtain is certainly fibrous in its texture, although its fibrillæ cannot be distinctly observed, without the most minute and microscopic observation. Upon its superior margin is suspended little black bodies, technically called *corpora nigra*, there are also a few of them, though very minute, in the lower rim, and they are both supposed to stifle the too copious admission of light to the eye; the pupil is contracted in viewing a small object, and expanded in viewing a larger one, and when the light is very intense the pupil is completely closed. Light is not the *exclusive* medium of vision, as may perhaps be thought from our previous remarks on the dilatation and contraction of the pupil.

because if the optic nerve be paralyzed, the above agent then loses its power to produce that sensation upon the sensorium, which we denominate the sight; from this therefore, it may be drawn or inferred, that the faculty of seeing is as much dependant on the nervous influence, as it is on the stimulation of light. The *iris* of some horses is white, through which circumstance they are very quaintly denominated by a certain class of horse jockeys "*wall eyed*," and this peculiarity is considered by them, and others, as indicative of a good eye, and thought to render it less liable, yea, some go so far as to say totally *unliable* to specific ophthalmia, an opinion which we conceive to be too chimerical to be well founded. The *retina* is another membrane of considerable importance to the organ now under discussion; it is the expansion of the optic nerve, and is the medium through which all impressions are communicated to the *sensorium*, or the brain; it is very delicate, and is situated just behind the lens *chrySTALLINA*, or *chrySTALLINE* lens; it is possible that the term *retina*, under which it is described, may be derived from its reticulated texture, or the supposed resemblance that it bears to a net, although such appearance cannot be clearly traced by dissection, on account of its exquisitely delicate structure, it not being able to bear the lightest touch of the knife, in our examinations; it is very transparent and is universally allowed to be the active source of all visionary power, or ability to see. Lastly, the *choroides* may be now included in our list of

the internal expansions, it is a very delicate membrane, so delicate however as to get its name from its vascularity, and on its inner and outer surfaces a dark mucus is spread; ~~this mucus~~ this mucus is supposed to regulate the sight in a very great degree, but its colour varies very considerably in different creatures. In the human eye it is black, and is called *pigmentum nigrum*; in the cat it is yellow, by means of which, nocturnal vision is thought to be materially assisted; in the stag it is said to be blue, and in ferrets it is red; in the horse it is variegated, or made up of various shades, including green, blue, purple and black, which mixture it is conceived, affords considerable advantage to him, as he travels in the "*thicker gloom*" of night, and enables him to discover objects too indistinct, or invisible to the feebler eye of his bewildered rider. Finally, the *humours* of the eye will now be briefly noticed, before we conclude this interesting and important subject; the first humour is named *aqueous*, from its similitude or likeness to water, and the peculiar limpidity of its appearance is indescribably beautiful, it fills the most anterior portions of the eye, and is situated just underneath the *cornea*; it has been found by chemical analysis to contain gelatin, and albuminous matter, besides muriate of soda; but these remarks may be thought unnecessary here, we therefore pass on to observe that it is a secretion formed by a class of discerning vessels, discoverable only by microscopic observation, and is designed to give convexity to

the cornea, and thereby enables the eye to corrad-
iate the light to a focal point. The next humour
is called *chrystalline lens*, and is more solid or firm
in its texture than the others, it receives part of
its name, that of *chrystalline*, from its being chrys-
tal-like in brightness, or transparency, and that
of *lens* it derives from its lenticular shape, or
resemblance to that optical glass, or instrument,
which is used to throw the rays of light to a
point; it is found, upon close examination, to be
much harder in its centre, than its extremities,
and is double convex in its form, it is enclosed in
a capsule or bag, denominated *tunica chrystallina*,
but their surfaces are not in actual contiguity, for
an aqueous exudation is secreted from the tunic,
or bag, to prevent adhesion, and is called from
its discoverer *liquor Morgani*. The chrystalline
humour is more transparent than the two others,
and is confessedly of greater importance, (if
greater importance there can be in one composi-
tion of nature than another,) than any other
component part of the eye, that is, if considered
in reference to its functions. The rays of light
fall upon the retina through the medium of this
grand refractive agent, and convey an impression
to the mind, or thinking principle. Lastly, the
vitreous humour. This substance is not so firm in
its texture as the lens, but is more solid than the
aqueous humour; this is owing to the many little
cellular bags in which it is contained, and not to
its solidity of substance, for when drawn out of
those cells by puncture, it is as completely fluid

as the latter humour is; it is situated in the posterior portion of the eye, is very diaphanous, or in plainer language, transparent, and gets its name from its supposed resemblance to glass; it is enclosed in a capsule, something similar to the *tunica chrySTALLINA*, which is called *tunica vitrea*, it is partly covered by the *pigmentum nigrum*, or dark mucus of the choroid coat before noticed; its use appears to be that of giving roundness to the posterior parts of the eye, by filling up the vacuity which must have existed, had it not been for such a provision, besides affording other advantages which need not now be particularized. Having finished the anatomical part of my delineations of the eye, I will refer to a description of its diseases.

QUES. *What are the diseases incidental to the eye of the horse?*

ANS. The diseases to which the horse's eye is subject, are specific and simple *ophthalmia*, *cataract*, and *amaurosis*, or *gutta serena*, each of which I will endeavour briefly to notice. The first of these affections called *specific ophthalmia*, is very prevalent among horses, and what is much worse is also incurable; it is true we may palliate the symptoms, and the eye or eyes, will in a certain length of time, appear quite restored, but this is only transient, for all the original symptoms usually return with their former, and sometimes redoubled violence, and thus continue to go on in succession, until they end in the entire disorganization of the eye, and the animal becomes

totally blind; I would here observe, that old authors called this disease "*moon blindness*," because they had an idea that its recurrence was influenced by the changes of that nocturnal luminary, but this absurd opinion is now very generally discountenanced, (except by a few weak minded persons,) for the moon has no more to do with causing its return, than the seven stars have. The emphatic term given by Professor Coleman and others, to this affection is *specific*, in contradistinction to *simple* opthalmia, a mode of distinction judicious and accurate, because the former is constitutional, and the latter is mechanical, or accidental in its causes. It consists of a peculiar kind of inflammation in the conjunctive membrane of the eye, from which circumstance, French writers have called it "*inflammation de la conjunctive*;" and this inflammation continues to extend itself to the contiguous, and afterwards the deeper parts of the eye, including the cornea, iris, and chrystalline lens, the latter of which becomes at last completely opaque, constituting the disease called cataract. The *symptoms* of specific opthalmia, I shall not state at large, because they are too well known to need it; the most common signs are increased secretion of tears, connected with extreme tenderness of the eye-lids, an unnatural projection of the *membrana nictitans*, or what is commonly called the haw; a degree of dimness on the surface of the cornea, which increases as the disease advances; a fullness of the vessels of the conjunctive membrane and others. The most

characteristic symptom of this disorder, is the alternate removal of inflammation from one eye to the other; in the second stage there is generally an evident slight deposit of opaque matter upon the corneal membrane, or the eye is more cloudy, and this deposit increases in quantity or extent, at every return of the complaint, or until it terminate in cataract. Concerning the *causes* of this unmanageable disease, a few short remarks may be made; they often vary in character according to the nature and state of the subject, *plethora* will occasion it in some, but this is not always its cause, for many very poor horses will sometimes have it; hot and impure air, with excessive labour, and other agents, concur also in producing it, but these causes however much they may tend to its production, do not satisfactorily account for its remarkable frequency and *specific* character in the horse, in whom it appears to be hereditary, or at least the result of some pre-disposing liability to it, in his constitution.

QUES. *How would you treat this disorder?*

ANS. This must be regulated according to the stage in which it is brought to our notice, or the condition of the subject during the time of its existence; if the patient be plethoric, of course bleeding and purging will be adopted, and also the subsequent use of alterative medicines; a rowel should be put under the jaw, or a seton inserted in the cheeks, and some refrigerant lotion applied to the eye or eyes, such as the following,—viz.

Goulard's Extract, $\frac{1}{2}$ drm.

Tincture of Camphor, 2 drms.

Tincture of Opium, $\frac{1}{2}$ oz.

Rose Water, 1 pint.

Previously to its application, it will be proper to foment the eye with warm water, or if extreme local irritability be present, a decoction of poppies, or chamomile flowers may be used as a fomentation instead, although the former is generally sufficient. Some recommend the application of a blister to the cheeks, as a counter-irritant, but there is some danger of its getting into the horse's eye, which would considerably irritate and inflame, and make it much worse; others suggest the use of poultices, but they are not so convenient as fomentations, nor are they at all superior in efficacy. *Topical* bleeding too has been advocated by many clever practical men, but its beneficial effects have been irregular and uncertain; I have frequently bled locally, and I strongly recommend it, either from the angular vein, or what is called the eye vein, or else by scarification of the membrane under the upper eye-lid with a lancet. To draw blood from the temporal artery, can have no possible local advantage in it, because that vessel does not supply the eye, and it may also be difficult, sometimes, to pin up the orifice, because of the tenseness of the skin in that part; I have bled from this arterial channel in staggers, and have found no difficulty in stopping the bleeding by means of a small pin and a piece of tow, but this may not always be the case, As it

regards the *stable* management, we have only to say that all foul litter should be removed, and a free allowance of pure air be admitted, not that the ventilating openings, or "*air holes*," as they are often called, should be made in the front of the horse's head, for this would give too sharp a current of air for the eyes to bear; he should have carrots with a little good hay, and mashes, and if poor, a small quantity of oats, but not if he is plethoric, until he gets well, grass should be allowed in the summer, and that sort of food should always be given which does not require active chewing. The eyes should be kept from the stimulus of strong light as much as possible, to effect which bridle winkers should be worn in, as well as out of the stable, or some kind of shade secured to prevent irritation from the above cause. He should be well clothed, to counter-determine the blood from the eyes to the skin, and when the inflammation has subsided, the following gentle astringent may be applied,—viz.

Sugar of Lead, 2 drms.

Nitrous Æther, 1 oz.

Camphor. 2 drms.

Vinegar, 1 oz.

Spirits of Wine, 2 drms.

Rose Water, 1 pint.

This will generally prove a gentle stimulus, and promote the absorption of any opacity that may remain on the surface, of the *cornea*, and restore the eye to its original lustre. If this however fail, try powdered superacetate of lead and lump

sugar, equal parts, not by blowing it into the eye with a quill, but by dipping the finger made wet into the powder, and then introducing it into the internal canthus, or corner of the eye; I have adopted this plan with frequent success, and though I confess, that this method of removal corneal opacity, has been thought an unscientific, and even "*barbarous*" practice by some, yea, by men of the first order, and however cheerfully I would give such characters the pre-eminence as to professional judgment, still I cannot be made to desist from adopting any system of treatment that I have found effectual, merely because it may be stamped with the imaginary image of barbarity. I have tried other means, and have generally experienced them to fail; this therefore, it is presumed, is sufficient to exonerate from the charge of either ignorance or inhumanity. Before I conclude, allow me to remark, that the infamous practice of pulling out one eye to keep the other sound, with the little more humane system of excising the haw as a "*diseased excrescence*," are errors now of ancient date, and have fortunately, within the last half century, not been able to keep pace with the rapid march of intellect that has prevailed even among farriers, grooms, and gentlemen; they arose from ignorance, and have fled before the light of truth.

QUES. *Give me a short description of the nature and treatment of simple Ophthalmia?*

ANS. There is no real difference between the *simple* and *specific* ophthalmia, except in the con-

stitutional peculiarity of the latter, and the local character of the former; although the simple opthalmia arises from a different cause, still the treatment required is generally similar to that of the specific. Minute examination should always be used first, before the Veterinary Surgeon gives his decisions, or pronounces his opinion as to the nature of this disorder, and this is particularly necessary, because one is to be easily cured, and the other absolutely incurable. The eye-lids should be inverted, and close inspection should be given to ascertain whether an oat flight, or any other extraneous substance, has lodged itself upon the sclerotica or cornea; I once removed a large oat flight from the cornea, that was completely imbedded in a deposit on its surface, a curved needle is the most proper instrument for this purpose, and the hay seed, or other foreign particle, should be taken off by a steady yet quick stroke, taking care not to puncture the cornea in the operation; both lids should be secured by an assistant, or the amazing power of the retractor muscle, will prevent the perfect removal of the substance. All cases of inflamed eye from accidents, as a blow, bite, &c., may be cured by adopting the treatment recommended under the head specific opthalmia. I cannot leave this subject without remarking that the eyes are frequently swollen from (if I may be allowed such an expression,) a *sympathetic* cause, that is to say, their inflamed state, has only been a symptom of catarrh, or some other affec-

tion; this I should impute to what the illustrious John Hunter emphatically called "*contiguous sympathy*," and is commonly the result of a general inflammatory action in the system.

QUES. *In what may the disease called cataract be said to consist, and how ought it to be treated?*

ANS. We shall be very brief in our descriptions of this disease, for which purpose it will suffice to say, that cataract is generally, if not invariably the effect of ophthalmic inflammation, and consists in an opacity of the chrystalline lens, and its "*capsula translucens*," or transparent capsule. It is at present incurable, nor could couching be adopted with any beneficial effect in the horse, on account of the powerful resistance that would be made to the introduction of the needle, by the action of the retractor muscle, and even if it could, methinks the unusual phenomenon of a well adjusted pair of spectacles upon *his* brow, would be singularity enough to "*make a horse laugh*."

QUES. *What have you to advance descriptive of the disease called amaurosis or gutta serena?*

ANS. I have nothing more to observe in reference to it, than that it is a paralysis or palsy of the optic nerve; there is no palpable alteration in the structure or transparency of the eyes, and it can only be detected by taking the horse into the *shade* and thence to the *light*, in doing this there is no alteration in the size of the aperture of the iris, or the pupil; but it will remain stationary, or of one unchanged dimension. To be

more plain, let me say that the pupil of the sound eye will enlarge in the shade and contract in the light, but in this disease it does not, but as before observed, keeps one size. This is owing to the palsied condition of the retina, or expansion of the optic nerve, which disables it to regulate the natural motions of the iris, or more properly prevents the impression of light being communicated to the brain. It would be well for the junior student to frequently examine sound and diseased eyes, in order that he may become familiar with the important changes that take place from disease, and be more fully prepared for a prompt decision in disputed cases of blindness, particularly in the present disorder, which has puzzled the most practical observers, and is one in which even "*old birds*" have been caught, although favored with so large a portion of self-conceit, and importance.

QUES. *What have you to advance concerning FARCY?*

ANS. This is a disease of the absorbents, and in its most common character, is nothing less than a symptom of the glanders, and therefore when once introduced into the general circulation of the blood, will eventually terminate in the death of the animal. Sometimes however it appears to be *locally* fixed in the extremities, and by proper treatment has often been arrested in its progress, and the subject of it has been finally cured, but this is seldom the case. The existence of this disorder may be known by the appearance

of certain little tumours, or hard "*button like*" lumps; they commonly appear on the inside of the thigh and fore legs, running in the direction of the *saphena*, or "*kidney vein*," as some erroneously term it, of the hind leg, and the "*plate*" vein of the fore legs. They may generally be distinguished from surfeit lumps by their size and hardness, and still more certainly by the line of communication between them, or what is improperly called "*corded veins*:" if these appearances are not thought sufficiently decisive, the disease may always be distinguished after the tumours have burst or broken. The *surfeit* lumps as soon as they break, generally extend themselves into broad scabs, but gradually dry up and get well; whereas the *farcy* buds when they burst, form a small and circumscribed, peculiar kind of ulcer, better seen than described. These little ulcers are not always confined to the hind or the fore limbs, they frequently appear in every direction; upon the shoulders, opposite the ribs, on the cheeks, and other parts of the body, and if not removed by the means hereafter prescribed, will become larger, numerous and offensive, till the horse is finally glandered, which is always the ultimate result of this contagious disease, unless prevented by medicinal interference. I have in the course of my practice restored some few "*farcied*" horses, but in general they have ultimately sunk under the disease. The treatment I would recommend, is the following:—viz. to blister the corded veins, introduce the actual

cautery, or hot iron into the buds, and when they have slipped out in the form of a "core," and appear healthy, and discharge good matter, to apply the subjoined mixture to them,—viz.

Sulphate of Zinc, 2 drms.

Friar's Balsam, 1 oz.

Tincture of Myrrh, 1 oz.

If however they look "*foul*" and unhealthy, they should be dressed with the formula we shall recommend under the head *ulcer*, once or twice, and afterwards by the above compound, not forgetting to wash them clean with warm water first. The *internal* part of the treatment necessary to be adopted in this disorder, is the administration of small doses of calomel, from twenty to thirty grains at a time, in combination with a drachm of sulphate of copper; the following may be given for this purpose, for general use in this disorder,—viz.

Blue Vitriol, 1 dr̄m.

Peruvian Bark, $\frac{1}{2}$ oz.

Calomel, $\frac{1}{2}$ dr̄m.

Oil of Aniseed, 20 drops.

Gum Arabic, $\frac{1}{2}$ oz.

Honey to form 1 ball.

A quart of the decoction of peruvian bark, chamomile and other bitters may also be given every morning, at the same time carefully directing the attention to salivation as the result of the use of the mercury. When this symptom does appear, suspend the exhibition of the ball till it has subsided,, and then repeat; should this fail try from

one to two drachms of the diluted sulphuric acid, in a pint or quart of the above decoction, and give every other day for a week, unless symptoms of irritated stomach show themselves; during the disease the horse should be moderately supplied with bran, oats and beans, twice a day, with good sweet hay, and a few carrots, he should have warm water, and moderate exercise, and if it be in the summer season, may be turned out to grass, but if it happen in the winter, a proper attention should be paid to the warmth and comfort of the animal, he must not however be shut up in a hot unventilated stable, but put in a roomy, and moderately warm loose box, with his body and extremities suitably clothed.

Ques. *What is the meaning of the word FASCIA?*

Ans. This is an anatomical phrase made use of to signify a tendinous expansion, whose office is to retain the muscles in their proper places, and to impart considerable strength to them. It is easily discovered by the dissection of some dead subject, a practice highly necessary to the veterinary student, in order to enable him to put his *speculative* knowledge of anatomy into practical execution; I have found considerable advantage from thus visiting the slaughter yard, and dissecting the different parts of the animal's *internal* and *external* structure. Indeed without this system be adopted, it does not appear to me, to be possible that the practitioner can perform his surgical operations with either promptitude or safety, or that he can become sufficiently well

acquainted with the numerous varieties of *morbid anatomy*.

QUES. *What is the term FAUCES used for?*

ANS. It is one of the technicalities which medical persons sometimes adopt, when they speak of the seat of catarrhal inflammation; for instance when we describe the second stage of *catarrh*, we say, that there is an accumulation of mucus, or muco-purulent matter about the *fauces*, or the top of the throat. It is also employed to express the situations of the pharynx and larynx, and likewise in other instances of our professional conversation, which it would be unnecessary for me to enumerate.

QUES. *Has there not been some dispute as to the existence of simple FEVER in the horse?*

ANS. Yes, but it certainly does occasionally appear, though not often in the *idiopathic* form, as it is called, that is to say, unconnected with a local affection of any particular organ. The symptoms by which *simple* fever may be known, are a loss of appetite, a dull look in the animal's countenance, sometimes amounting to a sleepy stupor, the pulse is generally quick, but not oppressed, as in inflammation of the lungs, the breathing is slightly accelerated, but not short, quick, and painfully laborious, the mouth is hot, and the tongue often *furred*, or covered with a white crust, the extremities alternate in their temperature, sometimes hot and sometimes cold. There are a few other symptoms that occasionally but not invariably appear, indeed the charac-

teristics of the idopathic, are so much like those of symptomatic fever, as to lead some practitioners to doubt the propriety of the distinction altogether. However, as the distinguishing signs of every case of the last mentioned kind of fever will be noticed in our future descriptions of inflammatory disorders, we will not now enlarge upon them, but simply observe, that the mode of treatment required in the present febrile affection, is to first bleed, taking away from three to four or in some cases five quarts, according to the size and condition of the animal, or the extent of the fever, and repeat if found necessary; aperient clysters may then be thrown up, and in two hours after the bleeding, oily laxatives may be given to remove costiveness, as the following,—viz.,

Powdered Barbadoes Aloes, 3 or 4 drms.
Carbonate of Soda, 2 drms.

Dissolved in six ounces of hot water, then add castor oil eight ounces; if a ball be preferred, the annexed formula may be given,—viz.,

Barbadoes Aloes, 4 drms,
Antimonial Powder, 2 drms.
Castile Soap, 2 drms.
Linseed Meal, 2 drms.
Mix with Honey and give.

Let it be observed, that if there be any apparent tendency in the fever, to sink into pneumonia, or any other organic affection, each of these medicines may be divided, and given at twice instead of once; this caution should be implicitly

regarded, lest purgation to an injurious extent should follow from their exhibition; a symptom truly fearful in inflammatory affections of the chest. After the use of the above medicine the fever may be reduced by the following balls,—viz.

Nitre, 4 ozs.
 Antimonial Powder. 1 oz.
 Camphor, 4 drms.
 Liquorice Powder, 2 ozs.
 Honey to form 4 balls.

If much debility remain after the fever has subsided, give the following,—viz.

Chamomile Powder. 2 ozs.
 Antimonial Powder, 4 drms.
 Carbonate of Iron, 1 oz.
 Powdered Opium, $\frac{1}{2}$ drn.
 Gentian, 1 oz.
 Oil of Aniseed. $1\frac{1}{2}$ drn.
 Honey to form 4 balls.

The above treatment is generally sufficient, if mashes and warm water be given in the first stages, and proper attention be paid to the stable management, and general regimen of the horse during the existence of the disease.

QUES. *What is a FISTULA, and how do you treat it?*

ANS. A fistula of the withers, is an ulcer of very frequent occurrence with the horse, and is unfortunately one of the most difficult to cure and obstinate “*running sores*” the veterinarian meets with in the course of his practice. It is thought by some to be produced in many cases,

by certain impurities in the blood called *humours*, being centrally lodged there by an effort of nature, in order to "*gather and break*," and thus to depurate a foul and contaminated constitution; but this we conceive to be carrying the "*humoural pathology*" to an extent that is truly ridiculous. The proper or real cause however is accidental, and not constitutional, it may therefore be said to be occasioned by a tight collar, or the undue pressure of the saddle upon the withers, or by some other similar cause, whereby inflammation is excited in the injured parts, and if not removed by resolution, (which is very seldom the case,) terminates in suppuration, and in course of time extends to the ligaments and bones, till the spinous processes become completely carious. I have met with several cases during my professional career, in which the *dorsal vertebræ* of the withers have been desperately diseased, but my practice even in those cases, has generally succeeded; although I admit, that its curative efficacy has been but tardy, or gradual. The mode of treatment I adopted was as follows,—viz. if the swelling was hard or indurated, I did not attempt to remove it by repulsion, but immediately applied a powerful, though not escharotic blister, for the purpose of promoting the formation of matter, whereby I was able to discharge its contents by the use of the lancet, and afterwards by the seton, to procure a drain, or in the language of surgical phraseology "*a depending orifice*." I ought to have observed, that some practitioners

are in the habit of applying poultices to promote the suppurative process, but I have generally found that blisters, if properly applied, will accomplish this object much quicker than they can; after I had used the knife, I minutely examined the state of the ulcer, and if no corrosion of the muscles, ligaments, &c., had taken place, but a mere superficial ulceration was present, I had no occasion to apply those powerful caustics which are necessary in the advanced stages of this disorder, but simply dress the diseased surfaces with one application only, of the mixture we shall recommend under the head ulcer, and to leave some healing liniment, or ointment to be applied every day till well. If however deep and tortuous sinusses had formed in several directions, and much mischief had been done to the muscular and ligamentous connexions of the withers, by the previous detention of confined pus, I was obliged to pursue a more bold and apparently desperate treatment; I laid open every sinus, that is as far as was prudent, or practicable at the time, after which I excised a considerable portion of that "*foul flesh*," better known by observation than described by language; which so generally fills the interstices of the diseased muscles, &c., this being done sufficiently, or to my satisfaction, and the bleeding having totally ceased, I unhesitatingly adopted the old but effectual system of *scalding*, so commonly used by farriers; the following mixture I usually applied,—viz.,

Mutton Suet, 4 oz.

Spirits of Turpentine, 6 oz.

Melted together, and added to one ounce of the annexed liquid caustic, which is prepared by dissolving two ounces of quicksilver in four ounces of nitric acid; this must be gradually mixed, and not put to the melted ingredients till it is fully dissolved, and the fumes have wholly disappeared. This mixture should be kept in a well corked bottle, to be used for this disease whenever it may be required. I pour this into the sinuses quite hot, and well soak the whole surface of the fistula with it, at the first application. It will be proper, in order to prevent the consequent ulceration of the skin, by the flow of acrid matter from the ulcer, or the caustic, first to smear the sound parts with hard soap, or hogs lard; the above dressing must remain in the sore well covered with tow, and not touched for several days, or until a "*sloughing*" shall have taken place. At this time let it be again examined, and if still "*pipey*" or "*foul*," repeat the same dressing once more, which will generally suffice; but if no sinuses are found, and the parts look healthy, then apply the subjoined compound:—

Tincture of Benzoin, 4 oz.

Honey, 1 oz.

Powdered Chrystallized Verdigris, 1 drn.

Vinegar, 1 oz.

Spirits of Wine, 2 oz.

This will prevent an exuberant growth of granulations, or new flesh, and will considerably quicken

the healing process. It will sometimes occur, as we have before remarked, that the "*spinous processes*" become carious; this circumstance should be ascertained by the probe, immediately after the sloughing or "*core*" has come out, and the decayed surface of the bone seared with a hot iron, made in a proper form for that purpose, and then a pledgit of tow dipped in friar's balsam, must be laid over the whole of the caries, which will cause an exfoliation in a few days. The use of the actual cautery may appear a very formidable remedy, in the view of some persons, but it is unparalleled in efficacy, and therefore this consideration alone, without others, will, we presume, give it a decided pre-eminence over those milder but inefficacious means, dictated by the more *refined* sensibilities of a humane disposition. The ulcer should always be kept clean by washing it daily with warm water, as this materially prevents the further inroads of the offensive discharge, and also prepares it for healing. This observation is not intended to be applied to the time, when the *scalding* dressing is in the fistula, because then it might prevent the effect of the caustic, and do harm. I do not think it necessary to treat largely upon the present disease, this being far from my design in any of our subjects; I will therefore conclude my descriptions by making a few cautionary remarks to the junior practitioner. One of these remarks is, that ~~no~~ *arsenical* preparations ought at any time, or from any consideration whatever to be used, in

the attempt to cure this inveterate ulcer; this caution I urge, and strongly urge upon the principle of its dangerous causticity: I have witnessed its caustic qualities to be so powerful when used for this purpose, as to produce the most alarming degree of inflammation, and not less than three weeks have elapsed before a *separation* of the *core* has taken place, and even when it has apparently all sloughed off, yet some small portion of it has been left behind at the bottom of the fistula, and could not be exfoliated by any means. This unavoidably causes, to say the best of it, much more time and trouble, as well as danger than the treatment above suggested. I would therefore warn all persons professing the management or cure of this disease against such a pernicious, absurd, and consequently cruel practice. Another caution which I would also offer on this subject, is never to carry the work of *incision* to too great an extent, because some very large blood vessels, and not a few important nerves may be dangerously divided by so doing, and after all the lower parts of the sinuses may not even then be laid sufficiently open; beside all this the action of the caustic will often of itself "*cut out*" the pipes, as some express it, by its sloughing operation, without the consequent danger of hemorrhage, which is very desirable, and if this should not be the effect of their adoption, still they will make way for the safer and more effectual use of the seton needle, which is the only instrument that can be employed with safety in

such cases. Setons however, let it be observed, cannot be used when the sinuses have formed *under* the scapula, or the blade bone; the treatment therefore under such circumstances, must entirely consist in the repeated injection of stimulating liquids, with the occasional or seasonable use of caustic tents, introduced into the *pipes* so as to eat away all the ulcerated substance; this last method is called "*the coring plan*," and has cured many fistulous ulcers, but when arsenic has been used for this purpose, a practice very common with vulcanian farriers, I have known, in some instances, horses to be destroyed in thirty hours, from the severity of their agonies. Again, let me make another remark connected with the treatment of this disease:—namely, let no caustic application be used after symptoms of ulceration have subsided, or rather disappeared, but apply some mild escharotic, or astringent mixture, such as a solution of vitriolated zinc, or sulphate of copper; or the formula we recommended in our previous descriptions, to be used when no sinuses are found, and the parts look healthy. Lastly, let me drop one more observation, which is greatly important, and that is, that at every dressing strict examination should be used, to ascertain whether there be any fresh sinuses or pipes again forming, if there are, they must be laid open, either by the skilfully conducted use of the bistoury, or eaten away by the judicious introduction of some mineral caustic into them, such as sublimate, &c., or all our attempts to cure the

fistula will be found fruitless and unavailing, and the undertaking will ultimately turn out to our extreme mortification and disappointment.

QUES. *What observations have you to make respecting the anatomy and physiology of the FOOT?*

ANS. I do not intend to be circuitous in my descriptions upon the subject now before us, but will endeavour to comprise the principal anatomical and physiological points connected with it, in the most brief and explicit manner, I possibly can.* The component parts of the foot may be divided into external and internal; the external foot, or horny box in which the sensible foot is enclosed, consists, properly speaking, of the crust, sole and frog, but as certain names are in common use, to denote the minor divisions of each of these parts, it may not be improper to notice them as we proceed in our descriptions. The *crust* is that smooth expanded surface which we see when the foot is on the ground; the base of its anterior, or front portion, forms the toe, the sides form the quarters, and its posterior parts the heels; it is also called the *wall* as well as crust, because it serves as a wall to defend the internal parts of the foot. This part of the hoof differs in its extent or distance from the coronet in different parts of it, in the front it is the longest or deepest, at the sides it is not so deep as the front, but at

* For a full and interesting description of the anatomy and functions of this beautiful piece of natural mechanism, I would refer you to Professor Coleman's splendid and voluminous treatise on this subject, entitled "*Observations on the structure, economy, and diseases of the foot of the horse, and on the principles and practice of shoeing.*"

the heels is of less extent than at any part of it ; these proportions vary a little in some horses, even from the natural conformation of their feet, and in others from the effects of disease. This important part of the external foot is secreted from a vascular ring-like prominence, situated immediately beneath its superior margin, and called by Professor Coleman, the "*coronary ligament*," and is thinner in its upper, than its lower portion, or that touching the ground ; this circumstance, with others, prevents the otherwise injurious results of concussion, because by its elasticity it enables the foot to expand when the animal is in the act of progression. I should have remarked in my previous observations on this part, that there are a number of exquisitely beautiful leaf-like processes, proceeding from the internal surface of the crust, called the *insensible laminae*, they fit in very admirably with the corresponding leaves of the *sensible* foot, and afford a provision excellently adapted for freedom of action, and other purposes of parallel importance. In lifting up the foot we perceive upon its base, not only the sole and frog, which we shall hereafter treat upon, but also the heels and bars ; these are only continuations of the crust or wall, before noticed, but their uses are important, and in our examination of horses intended for purchase, we should minutely look into them. If the heels are weak and low they are more liable to corns, and by giving too great obliquity to the pastern, dispose the back sinew to extension or sprain ; if they

are narrower from heel to heel, than at the other parts of the quarters, they are then partially contracted, and will probably, (particularly if the frog be small,) very shortly produce thrushes, and other serious consequences of contraction. The bars are two tapering ridges that proceed from the heels and terminate at the point of the frog; they are intended to keep the heels open, and adjust the proper expansion of the foot. Indeed, this their use may be inferred from the existence of sensible bars underneath them, a clear proof, we presume, that they cannot be an exuberant production, whose tendency is to *prevent* expansion; although this notion is certainly entertained by many smiths, who call them "*binders*," and will cut them out in order "*to keep the heels open*," as they term it. The next parts to be noticed in our present description are the *sole* and *frog*; the former is that hollow surface which fills up the vacuity, that would otherwise exist, between the two sides of the crust, upon the bottom of the foot, it terminates in the two angles situated between the bars and crust of the heels, where it is generally the seat of corns, which have already been described; it is different in its texture to either the sole or frog, and its concavity of form with the toughness of its composition, very materially tend to expand the foot and give it elasticity, it often however becomes convex either from bad shoeing, or disease, when it constitutes what is generally named *pumice foot*. Lastly, the frog may be briefly defined; ~~this~~

portion of the foot is somewhat similar in its form to a wedge, and has in its centre a division called its cleft, from which issues, when diseased, an offensive discharge, forming what are commonly termed *thrushes*; the texture of this *elastic cushion* is peculiarly tough, exceedingly more so than either crust or sole, and it is this circumstance, probably, that prepares it for repeated contact upon the ground: its principle uses are to defend the sensitive frog beneath, to expand the heels, and to support the flexor tendon, which is more deeply seated within the interior of the foot, and beneath the sensible frog, and which passes over the navicular bone, to be finally inserted at the *os pedis*, or coffin bone.

QUES. *Having briefly noticed the "external parts, proceed to describe those of the internal foot?"*

QUES. It is a general rule with most writers, in describing the anatomy of the internal foot, to begin with the bones, and so go on till they come to the sensible sole and laminæ, but this plan we beg to deviate from, and first take into consideration the *sensible laminæ*. These are very vascular, but semi-cartilaginous plates situated on the anterior, and partly on the posterior portions of the internal foot; they derive the name of laminæ from their leaf-like appearance, and they bear a very singular resemblance to the under surface of a mushroom; they are made to fit in as we have before remarked, with the lamellæ of the insensible foot, with inimitable beauty, and their chief use is to prevent by their elasticity, the

dreadful effects that must have arisen from concussion. The *obliquity* of their direction also, gives them an additional advantage in this respect, because it is generally allowed, that an erect position is extremely unfavourable to spring, or freedom of action; such a provision, therefore, in the economy of the foot, must be considered as mechanically advantageous to it, indeed, it is from this view of the laws of mechanism, that the Dealer rejects the horse with an upright foot, knowing it to be a material disadvantage to him during progression, inasmuch as it favours concussion by the increased jar that is thrown upon the foot. The opinion that the sole takes an equal share with the laminæ, in sustaining the super-incumbent weight of the body, may not only be doubted from the marked difference of the two in point of texture, but has actually been falsified by a convincing, though cruel experiment:—namely, a horse of a vicious disposition, had his sole, frog, and bars “*drawn*” on purpose; and was then touched on the rump till he “*kicked out in style*,” becoming, while under such unwelcome annoyance, the perfect terror of all that were near his heels; now this circumstance must fully confirm the fact, that the laminated processes certainly bear the greater part of the weight of the whole frame, inasmuch as not the slightest injury followed from the experiment, nor did the coffin bone “*fall down*,” but retained its natural situation, even under the tremendous pressure of more than double its usual burden. The sensible

sole is an important part of the internal foot, and its outer surface is very vascular, but that portion of it which adheres to the coffin bone is of a ligamento-tendinous texture; it is subject to abscess from pressure and other causes, and in such cases all the "*under runnings*," as they are called, must be removed, or else the most obstinate ulceration will generally ensue. The sensible *bars* need no particular description, it is only necessary to state, that they are productions, or rather continuations of the sensible laminae, and are doubtless designed to keep the heels open, indeed, there is a striking similitude, not only between them and their corresponding *insensible bars*, but also between other parts of the internal and external foot. The sensible *frog* resembles in its form that of the external, but differs of course in its texture, or composition; it is composed of a soft fatty sort of substance, blended with cartilage, and ligamento-tendinous expansions, and its outer surface is extremely vascular, from which the horny frog is undoubtedly secreted. The lateral cartilages, which we shall shortly notice, appear to give off a portion of their substance at the heels, which is continued down the frog, and mingles with its other component parts; this fact may serve to prove that the frog is the chief expanding medium of the foot.

The *coronary* ligament is that vascular projection of which we have before briefly spoken, it is situated at the front and sides of the coronet, and is just above the elastic laminae, the *extensor*

tendon is inserted underneath it, and is thought to gain mechanical advantage from being steadied and secured by it, thereby affording a more fixed point when the limb is in a state of extension. The *lateral cartilages* are two elastic bodies, situated on the side extremities of the coffin bone, and are very large, forming with their connexions a great part of the sensible foot; they are covered with a *plexus*, so to speak, of small vessels upon their outer surfaces, are externally convex, and internally concave, and are blended partly with the coronary ligament, and partly with the sensible frog; their use is to expand the heels and prevent contraction, they are subject to ossification, or conversion of their substance into bone when they constitute those ossified excrescences called "*ringbones*."

Having given a brief description of the above parts, I purpose by way of conclusion to refer to the *bones* of the foot. The first bone worthy of our notice is the coffin bone, or what is denominated by anatomists the *os pedis*, or bone of the foot; it has on its anterior portion which joins the *os coronæ*, or small pastern bone, an eminence that gives insertion to the extensor tendon, and that part of it which is nearest to the ground is concave or similar in form to the *insensible* sole. Its anterior and under surfaces are furnished with a multiplicity of little holes intended for the transmission of extremely small vessels, whose office is to conduct the circulating fluid into all the interior parts of the foot, and thereby preserve and promote the functions of secretion,

reparation, &c. ; indeed, to give and continue *life* as it were, to this very beautiful and complicated piece of animal structure. There is situated just behind the concave part of the os pedis, another small bone anatomically called *os naviculare*, or shuttle-like bone, over which passes the flexor tendon, as noticed in our previous remarks, and to which is united by ligamentous connexions the *os coronæ*, or small pastern bone ; this navicular bone is thought to give great mechanical advantage to the back sinew, in the act of bending the foot during progression. The os coronæ at its lower head articulates with the coffin bone, and also with the navicular, and the three together, including the os pedis, os coronæ, and os naviculare, form, when connected with articular and other appropriate ligaments, what is called the "*coffin joint*." Before I conclude my anatomical descriptions of the foot, I would just observe, that the vascular and other parts of this richly organized piece of mechanism are supplied with blood, by the minute ramifications of the pastern arteries, and its return is effected by veins of the same name ; two branches of the above mentioned arteries enter the coffin bone by means of foramina, or little holes, and give it life and organization ; they are also supplied with nervous influence, by the metacarpal and pastern nerves, branches of which furnish the anterior and posterior portions of the foot. Having no more to add descriptive of the structure or economy of this beautiful organ, I beg to refer to the next subject of discussion.

QUES. *What are we to understand by the word FOUNDER?*

ANS. The term founder is used to express a certain disease of the feet, which is divided into two kinds, viz. chronic and acute. By the former term, or *chronic*, we generally understand a morbid contraction of the hoof, which by compressing the sensible frog often produces what is called thrushes, and other painful inconveniences to the horse. To dwell largely upon the nature, the cause, the effects, and proposed remedies of this almost universal disease, would be to engross your attention to no real or satisfactory purpose, more especially so, when we consider that it is a disorder, which to say the best of it, can only be palliated; and even that cannot be accomplished without considerable trouble, care and attention in the management of the affected animal; not that this circumstance affords a sufficient plea for giving a mere cursory description of a disease, but when we call to mind the very strange indisposition of almost all persons, concerned in horses, to pay a minute and strict attention to the state of the feet, and when such care and management after all is only repaid by palliation, it will be needless for me to dwell at large upon it; particularly when we consider that it has been so ably and judiciously described by some of the brightest luminaries in the veterinary world, one of whom has significantly styled it his "*hobby horse*;" by men whose observations upon it must, doubtless, have been far more extensive than mine. Possibly

could be ; indeed for me to attempt this, would be to assume an unmerited equality with those who have gone to the very utmost extent of enquiry, observation and experiment. Let it therefore suffice merely to observe, that the leading objects we should implicitly attend to in this affection, are good shoeing, and keeping the feet moist by the alternate use of tar ointment, and Cherry's pads, or some other similar contrivance. Neurotomy, or the nerve operation has been proposed, and also practised by many superior veterinary surgeons, as being the best palliative for this disorder, but either the "*unfitness*" of the subjects performed upon, or the natural inefficiency of the operation itself, to accomplish what its advocates profess or engage to do, has led to its almost general disuse. It ought, nevertheless, to be tried in all cases where satisfactory prospects of its utility can be cherished, or where the animal cannot be made worse than he already is. *Acute founder* is a disease of very frequent occurrence, and produces considerable pain to the animal ; it is known by the horse, when bearing on the affected feet, throwing his hind quarters under him, and every minute shifting his fore legs, being unable to sustain the superincumbent pressure of his body. If all the feet are attacked at one time, he cannot stand at all, or to say the least, without much pain, he sometimes sweats most profusely from the intenseness of his sufferings, the pulse is quick, and the system much excited. I have met with a number of cases like unto this,

and many of my employers have not had the least idea of what was the complaint, I have generally succeeded in restoring the patient to considerable usefulness, indeed, in many instances to perfect soundness. My plan of treatment has been to bleed generally first, then to draw blood from the toe vein of the foot, or the plate vein of the shoulder, and afterwards to wrap the foot up in cold poultices, renewing them every two or three hours. I have opened the body by laxative clysters, and sometimes by a mild purge, have given fever medicine, thinned the sole nearly to the quick, and rasped the hoof thin also; in a few days afterwards, or when the violent symptoms have partially subsided; I have blistered the pastern, and repeated at proper intervals, and when the horse has been well enough to walk a little, have turned him out to a grass field. If it occurred in the winter season of the year, I have adopted the same method, giving him also the advantage of a hovel for shelter.

QUES. *Of what service is FOXGLOVE in veterinary medicine?*

ANS. This medicine has received the technical name of *digitalis*, and has lately been introduced into veterinary practice; its virtues have, perhaps, been too highly extolled by some, while on the other hand, they have been unfairly under-rated by others; it will however, if seasonably employed, and administered in suitable proportions, be found exceedingly serviceable in inflammatory and other affections of the lungs and chest, by

sensibly diminishing the frequency of the pulse, and thereby reducing the fever, and other unfavourable symptoms, accompanying those and other dangerous diseases of the "*circulatory system*." In *pneumonia* the dose required to be given at once, will be about one drachm, in combination with nitre and tartar emetic, three drachms of the former, to one drachm and a half of the latter, and repeated two or three times in the day. It may likewise be administered both in the acute and chronic stages of catarrh, in smaller quantities, combining it in the latter stage with the expectorating medicines already noticed under that head. Its effects upon the circulation cannot be ascertained with accuracy, without a competent and familiar acquaintance with the general and peculiar character of the pulse, the attainment of which should be considered as indispensably necessary for all those who engage in the treatment of animal diseases.

QUES. *Are FRACTURES within the reach of curative means?*

ANS. Sometimes they are, but very seldom, if they happen above the hock in the hind leg, or above the arm in the fore leg, it will be useless to attempt any plan of cure, but if below these parts you may try the following method:—viz. first secure the broken ends of the bone by a bandage, and afterwards with well contrived splints, bathe the parts with evaporating lotion, and give a mild purge and bleed; keep the limb straight by the elevation of the shoe heels, and

sling the horse upon bolsters of hay and straw. This mode of treatment is as likely as any to succeed, and should be adopted in all cases where any satisfactory prospect of recovery is entertained.

QUES. *What remarks have you to offer in reference to that terrible and incurable disease called GLANDERS?*

ANS. Of all the diseases to which horses are subject, there is none so malignant and incurable as the one now under consideration; it is a disease that has baffled the skill and abilities of the most superior and practical men in the veterinary profession. This is not only the case, as it refers to our own country, but it is equally intractable and obstinate in other nations, in which veterinary institutions are more general, and where that science has been most extensively cultivated for a series of years. The most formidable character it is made to sustain, is its contagiousness, from which circumstance it has sometimes proved a fearful bane to society at large, having carried off, probably, thousands of horses, and been the unfortunate cause of serious privation among many respectable horse proprietors. The incurableness of this disorder, cannot be imputed to the indifference of the profession to it as a distinct disease, because the attentions of some few eminent men, have been almost exclusively directed to it; it has been the all absorbing subject with them, they have conducted experiments on the largest scale to unravel it,—have ransacked the whole

Materia Medica to find an antidote for it,—and have been forced, after all, to desist from their researches, being completely tired out with the difficulties of their pursuit. It will therefore be needless for me to enumerate the means that have been adopted for its removal, let it suffice simply to give a brief list of its *causes*, a description of its *nature* and *effects*, and the measures tried for its detection. One cause is *contagion*; whether there be any real distinction allowed by the laws of phraseology, between the words contagion and infection, I am not prepared to determine, but if by the term contagion, the communication of disease by actual contact is only meant, and if by infection we are to understand the propagation of the same disease, but through a different medium; namely, that of certain *morbid effluvia*, supposed to arise either from the body or the breath of the diseased animal, and conveyed to another by inspiration; *then* the distinction must be evident, and we should have no hesitation to reject the latter theory, and allow the former; that is, we should say that the nasal discharge must come in contact with some communicable medium, such as an abraded surface, or by inoculation, or the introduction of the virus into the stomach, &c. You will perceive as we go on, that I have taken the liberty to give a distinct meaning to those two words, contagion and infection, and I beg to remark, that the opinion of the latter being able to give this disorder is now very generally objected to; because

glandered horses have been put in proximity with a sound one, (being of course prevented from touching each other,) and the invariable result has been the non-appearance of injury or disease as a consequence thereof. I do not however feel disposed to dispute upon either of them, will therefore refer to another cause:—namely, *hot and impure air*. By this latter term *impure*, I do not mean the supposed contaminated air, said to be generated by the breath, &c, of the affected animal; no, the polluted air of the filthy unventilated stables, is what we now allude to. It is a fact well known, that farmers' horses seldom, or never have this disease, except by contagion, whereas those that are kept in hot and filthy situations, where the atmosphere is polluted and unwholesome, are frequently the subjects of it. This is an assertion that has been realized in many practical instances, to which we might especially refer, if it were thought necessary. Another connecting cause of this complaint is "*hard work*," it must ever be remembered that excessive labor so deranges the sensorial powers, as to be almost sure to produce disease in some form or other, and by being repeated not only diminishes the activities of the animal, by the slow and chronic inflammation it induces in his joints, but also gradually undermines the energies of his constitution, and prepares it for this and for other loathsome or dangerous diseases; not that we are to infer that this cause is sufficient alone to produce it, or without the joint operation

of hot and impure air; some have thought that neglected strangles, or improperly treated catarrh will degenerate into this disorder, but of this I am one of little faith, having never witnessed any instance in which I could draw such a conclusion. Let it be remarked, before I proceed to notice the *nature* of this affection, that the agents above noticed, with the exception of contagion, must only be considered as its connecting, and not its sole causes.

In reference to the *nature* of glanders, we may observe, that it is generally divided into *chronic* and *acute*; it is *chronic* when the system has been under its influence for some time, but is, nevertheless, very little affected by it; and it is *acute* when its destructive action is sudden or immediate, or is accompanied with symptoms of general constitutional excitement. Many instances have occurred, in which the animal's constitution has remained unimpaired by it for more than one year; perhaps I go too far when I say unimpaired, but I think I can say without fear of contradiction, that the system has been but little affected by it during that length of time. However, as it will not be necessary to enlarge upon this point, let it suffice to say, that the distinction between one and the other, must be considered appropriate, and therefore we will refer to the acute form. This disease is acute, as before remarked, when the absorption of glanderous poison is speedy, or its deleterious qualities are introduced and carried over the whole system so quickly, that the animal

dies in a short time afterwards; sometimes it shews itself in the form of farcy, and the lymphatics are considerably "*corded*" and inflamed, the valves of these vessels enlarge and form buds, as they are called, after which they burst and occasion sanious ulcers, and the whole absorbent system becomes one great channel for the diffusion of this morbid virus. It has been thought that farcy is a local disease only, and glanders a constitutional one, but a very little practice and observation will evince the fallacy of this notion, because hundreds of instances can be referred to, in which both have existed at one and the same time, besides the fact that inoculation with the matter of farcy will produce glanders; it may also be observed that the *blood* or circulating fluid is diseased in this complaint. I am aware that several well informed practical inquirers, have disputed the existence of impurities in the before named fluid, but "*sheer experiment,*" (a criterion generally too correct to deceive,) has completely invalidated this theory, and the proof of diseased blood has been established by transfusion; that is to say, the blood of a glandered horse has been poured into the veins of a sound one, and the most unequivocal symptoms of either glanders or farcy have shown themselves soon afterwards. In addition to this we may be allowed to remark, that it does not appear easy, without reference to this position, to account for its destructive or rather contagious character.

The next point that demands our attention is its *effects*; the first effect is a *specific* inflammation of the pituitary membrane, the second is generally a prostration of constitutional vigor, the third is an ulceration of the *membrana Schneiderii*, or membrane of the nose, the last effect is tuberculation, and consequent ulceration of the lungs; sometimes a very striking derangement in the cutaneous secretion accompanies the latter result, that is to say, the hair falls off, and the horse appears as though he was mangy. I once saw a case that appeared to be glanders, spontaneously cured, from turning the animal out to grass; it is true, his constitution did not appear to have suffered much from it, but, nevertheless, many convincing symptoms of its presence were clearly indicated, and the horse seemed evidently affected with it; the character of the discharge sufficiently distinguished it from that of mere chronic inflammation of the nasal membrane, arising from neglected colds or strangles, and the existence of ulcers up the nose, rendered it still more certain as to its nature. It is not improbable, however, that the above case was mistaken, for we do not yet know of any means by which real glanders can be cured. Lastly, we will now refer to the mode of *detection* adopted to discover its existence, some infer its presence from the glutinous nature of the matter discharged from the nostrils, but this appearance, though very general, is not sufficient to draw a final decision from;—others consider the

very close adhesion of the submaxillary glands to the jaw, to be characteristic of the disease, but this symptom, in my opinion, is less decisive than the former ;—others discriminate by the non-existence of febrile indications, but this plan of inference is certain to mislead, for several instances of nasal discharge, unconnected with glanders, have been seen without the concomitancy of fever, and therefore such a criterion ought to be discarded, as being false and inconclusive ;—some have thought that the discharge being confined to one nostril is the best standard to judge by, but this is not always the case, because we often see glandered subjects "*run on both sides* ;"—the dropping of the matter from the nose into a pail of water, which if it be glanderous, but not without, will sink to the bottom of the vessel, has also been considered a correct mode of discrimination, but even this, though recommended by veterinary writers of deserved popularity, is not so certain as one we have yet to notice ; we allow it to be with the exception of inoculation, as correct a medium of detection as any we know of, nevertheless, we cannot view it sufficiently accurate to decide upon a case positively ;—the ulcerated state of the nasal membrane, is thought to be a decisive sign by some, and so it is, generally speaking, if put in connexion with other symptoms ; but sometimes the inexperienced, mistake small flakes of matter for ulcers, and have on this account given in a wrong decision ; the most certain test therefore, to prove the existence of this complaint

is inoculation ; the manner in which this simple operation is performed, is as follows :—namely, get a young ass, clip off the hair about two or three inches in circumference in the middle of his neck, then take a lancet or bistoury and dissect the skin from the cellular membrane, so neatly, that but very little blood escapes, after which introduce with a probe a small piece of tow dipped in glanderous matter, into or rather under the skin. This, if it be *genuine* matter, will generally produce in the course of ten days or a fortnight either glanders or farcy, whereas no other sort of matter is able to cause such an effect.

QUES. *What remarks have you to offer concerning that frequent disease called GREASE ?*

ANS. I do not deem it necessary to say much in reference to this disease, let it suffice merely to state a few of its causes, and then proceed to give a brief description of its treatment ; but before we attempt to define its causes, it will be proper just to observe, that *grease* consists in a discharge of ichorous and offensive matter from the heels, accompanied with swelling. and other symptoms too well known to need comment. Its causes may be briefly included in the following summary, namely, plethora,—insufficient or total want of exercise.—bad grooming,—and constitutional predisposition. First let us notice *plethora* as a cause ; by this term we mean a general fullness of the vessels, or a state in which more blood is formed than is required to supply the demands of the animal's system ; this circumstance

surcharges the capillary vessels, with more of the above mentioned fluid than they are able properly to propel, and consequently an imperfect circulation, or a "*local debility*" takes place in the heels, and grease follows. Insufficient or total want of exercise, combined with confinement in a stable, whose atmosphere is polluted, and an undue supply of nutritious food, or "*hard meat*," is almost sure to produce it; because in this case the absorbents are deprived of the necessary stimulus, or rather assistance of exertion, to enable them to absorb the fluid driven to the extremities. *Bad grooming* is, perhaps, the most frequent of all the causes; the filth and dust accumulated about the heels are allowed to remain on their surfaces unremoved, or if washed off, yet so imperfectly and slovenly is this done, that the legs are suffered still to continue wet or undried, or only dried by the more natural heat of the animal's body, instead of having the artificial advantage of active "*mechanical friction*," and and warm freely applied bandages; this suddenly checks the temperature of the circulating fluid in those parts, and thereby becomes the most common source of this disease. Let me also remark, that so generally is bad grooming acknowledged to be the cause of the present disorder, that even many "*stabularians*" will admit it, and some of them would be as much ashamed of seeing grease in their stables, as a decent, cleanly-disposed housewife would be, to witness in her family that filthy complaint, which certain persons of a some-

what refined order have been pleased to term, the "*scotch fiddle*." Lastly, *predisposition* may be just touched upon in our descriptions; the existence of this predisposing principle in some horses may be inferred from the greater frequency of this affection among them than among those in which frequency has not arisen from *itching*, or check to cutaneous discharge, or from any of the common causes of grease, but from constitutional tendency to it, because some of them have had it even "*at grass*," or in a state of nature; and I have generally found that such subjects are *sure* to have it, if brought into artificial habits, and that too, far more malignantly than many which are neglected, badly groomed, &c. Having briefly glanced at the most prevailing causes of this complaint, let me now refer to the *treatment* of it; this will depend upon the state of the disease, or the condition of the animal, if plethoric, he must be bled, have a mild purge, (taking care to give him that attention which physic always requires), and a rowel inserted in the thigh, the heel or heels must be poulticed with one part of linseed meal to four of bran, well steeped in hot water, and when of a proper warmth, applied by means of a flannel bag, made on purpose; the poultice must be renewed every day, till the stiffness and exquisite tenderness of the affected parts is removed, when the following may be used:—viz.

Sulphate of Zinc, $1\frac{1}{2}$ drms.

Alum, 2 drms.

Spirits of Wine, 4 ozs.
Decoction of Oak Bark, 1 pint.

This will generally dry the heels up, and soon get them well; should it however fail after a trial, and the parts look "*foul*" and ichorous, use the following liniment:—viz.

Alum, 2 ozs.
Camphine, 1 oz.
Powdered Chrystalized Verdigris, 2 drms.
Spirits of Wine, 2 ozs.
Sweet Oil, 8 ozs.

Put pledgits dipped in this mixture upon the raw surface, and secure it by means of a bandage. During the whole course of this disease mild diuretics with antimonials and cordial medicines should be given, as the following:—viz.

Nitre, 3 ozs.
Camphor, 6 drms.
Castile Soap, 2 ozs.
Sulphuret of Antimony, 1½ oz.
Best Liquorice Powder, 2 ozs.
Oil of Aniseed, 2 drms.
Honey to form 6 balls.

One to be given every other day, till a diuretic effect follows, then suspend their use for a few days, but afterwards repeat. The above directions properly attended to, and connected with "*cooling diet*," moderate exercise, &c., will generally succeed, I have found it successful in a variety of cases. If the patient be very poor, bleeding must be dispensed with, and also the physic, but

even here mild diuretics, with antimonials and cordials will be found extremely serviceable, and the animal may be allowed more nutritious food than in the former case, taking also sufficient exercise to prevent swelling, stiffness, &c.

What is termed *confirmed* grease, or when excrescences called grapes appear, may be cured by cutting them off with a keen knife, and then searing them with the actual cautery, to prevent hemorrhage; after the bleeding has quite stopped, apply an emollient poultice, and continue it for a few days, this will give a new and healthy action to the ulcerated surface, and rapidly dispose it to heal; to prevent consequent tumefaction and pain from the use of the hot iron, it is frequently necessary to bleed and purge, as well as to apply cooling applications. Should the grapes reappear, dress them with the following mixture:—viz.

Oxymuriate of Mercury, 2 drms,

Muriatic Acid. 4 drms.

Tincture of Aloes, 1 oz.

Water, 1 pint.

Mix and apply every day till the healing process commences, when the following may be applied, which will soon cure them:—viz.

Powdered Chrystalized Verdigris, 2 drms.

Powdered Alum, 1 oz.

Spirits of Wine, 4 ozs.

Honey, 2 ozs.

Vinegar, 4 ozs.

Hot Water, 10 ozs.

QUES. *What is the GULLET?*

ANS. The gullet is called by anatomists the *œsophagus*, and is that tube by which the food is conveyed to the stomach; it commences at the top of the throat, where it dilates so as to form the *pharynx*, its lower portion named *cardiac orifice* is the beginning of the stomach, and is composed of three coats; the first is the most exterior tunic, and is membranous, the middle is muscular, and the inner surface is cuticular. It is not necessary to enlarge upon the various uses of these respective coats, suffice it to say, that the contraction and dilatation of the *œsophagus* is effected by the muscular coat, and the cuticular coat being insensible, may perhaps, though this is not certainly known, check the too powerful action of certain violent medicines upon the stomach, while the membranous coat, probably supports the muscular, when the gullet is in a state of distention.

QUES. *What observations have you to make in reference to the anatomy and physiology of the HEART?*

ANS. The heart is a powerful, hollow and involuntary muscle. Before we proceed any further, we would just observe that there are three orders of muscles in the animal system:—namely, *voluntary*, *involuntary* and *mixed*. The organ now under consideration is called *involuntary*, because it is not under the stimulus or control of the will, but to be more to the point, we will refer to the *formation* of the heart. It is divided into four leading cavities, two of which are named

ventricles, and two auricles, the latter it has been thought should be considered as "*appendages*," rather than cavities, because they only form a connecting part of the ventricles. The *ventricles* are the origin of all the arterial channels, and the *auricles* are the parts to which the veins return. These curiously constructed cavities, derive their names of *right* and *left* from their respective situations; the same observation may be applied to the *Aorta*, or the largest of all the arterial tubes, which divides into *anterior* and *posterior*. It is the first vessel engaged in the circulation, and takes its origin from the left ventricle, and at a short distance from the heart, bifurcates into two large branches, and afterwards ramifies into smaller divisions, which gradually become as they pursue their devions course, still more minute; till they ultimately terminate into what are anatomically, called the "*capillary*" vessels. The right ventricle supplies the lungs with blood, by means of the *pulmonary artery*, which bifurcates into right and left directions. There are also valves in the cavities of the heart, intended to prevent the retrogression of the circulating fluid which is poured into them, and have received their proper names from their peculiar form. Let us now notice the *auricles*.

The right auricle sends forth the great *Vena Cava*, which divides into a posterior and anterior portion, the same as the *Aorta* does; the left auricle receives the blood brought to it by the veins,

after it has been circulated over all the body. These appendages are denominated auricles, from their resemblance to a dog's ear; whence they appear to have taken their names. They are membrano-muscular in their texture, and communicate freely with the ventricles. The *pulmonary* veins carry their blood into the left auricle, and from that to the same ventricle, to be driven into the *Aorta*, and again carried over the whole frame. The substance of the heart is supplied with blood and nervous energy, by means of certain nerves and arteries; whose situations and names need not be described. I ought to have included in the former part of my descriptions the *pericardium*; this is a membrane which surrounds the heart in the form of a bag, whence it is commonly called the heart bag; and is similar in texture to the *Pleura*; it does not actually touch the heart, but is so constructed, as to allow an intervening space between that organ and itself; in order to give sufficient room for its dilatation or expansion. It is very smooth on its inner surface, and an exudation is secreted to lubricate its sides and prevent adhesion; an accumulation of this fluid constitutes the disease named "*pericardial dropsy*."

QUES. *Having given a brief detail of the heart, anatomically considered. I will now beg you to refer to its PHYSIOLOGY.*

ANS. The most important use of this organ is to receive and propel the vital fluid, by means of certain vessels all over the body, which office

is denominated the circulation—a brief description of which is inseparably connected with the present subject. I will therefore begin it by observing, that some writers have divided it into lesser or *pulmonary*, and *greater* or general; but as this is not an explicit or concise mode of illustration; we will make no division, but simply and briefly describe the general course of the blood, throughout the whole animal frame. When the left ventricle is full of blood, it is stimulated to contract upon its contents, and propel it into the Aorta, after which that vessel by its communicating channels, conveys it to every part of the body; it is then received by the veins, and they by inosculation become increasingly larger till they reach the right auricle, when they pour the blood into the same ventricle; it is then carried into the lungs by the pulmonary artery, when it becomes oxygenated by the inspiration of atmospheric air; and is possessed of those vital qualities which it had imparted to the system. After it has been circulated through the lungs, it is carried to the pulmonary veins, and thence to the left auricle and ventricle, to be again conducted over all the body, by means of the arteries. This is the circulation considered as general, and is perhaps as easy a mode of definition as any we could adopt. I cannot however help observing before I conclude, that the motion commonly expressed by the word *pulse*, arises from the contraction and dilatation of the heart; which are technically denomi-

nated *systole* and *diastole*. That is to say, when the above organ contracts upon its contents the arteries are dilated, and the blood is driven forward by the impulse of the heart to the extremities. It does appear, however, upon mature consideration that this "*primum mobile*" of the living system, or the heart, could not possibly by itself propel the before named fluid, but by the combined assistance of the latter order of vessels; I mean by this remark, that their contractile power materially co-operates with the stimulus of the heart. What may be the *primary* cause, philosophically considered, of the heart's motion, I am not competent to affirm; whether it proceeds from any natural self-possessed energy of that organ, or whether it arise from any chemical principle in the blood as a fluid, I am not prepared to determine; it being a subject on which many opinions have been offered, yea, several argumentative and ingenious positions have been advanced, but without any satisfactory result as to the decision of this disputed point.

QUES. *What is the носк ?*

ANS. The носк is a very large and powerful joint, and is made up of several bones, which I shall hereafter enumerate. It is surrounded with ligaments external and internal; the external are called "*annular*," from their ring-like envelopment around the joint, and between them and the capsular ligament there are tendinous expansions, besides two or more little bags filled with mucous

fluid; these bags are denominated "*bursæ mucosæ*," and are designed to assist in preventing the evil effects of attrition. There is also a limpid fluid secreted from the inner surface of the capsular ligament itself, which concurs in the same end, the latter encloses the whole hock, and lubricates the extreme surfaces of the articular bones, and materially facilitates the natural motions of the joint. The bones of the hock are six in number, and have received the following appellations, from their individual peculiarity of form:—viz. *os calcis*, *astragalus*, *os cuboides*, *ossa cuneiformia*. They may be seen by dissection of the hock joint. A description of the diseases of this joint, will be noticed under the heads spavin, curb, and wounds of the joints.

QUES. *What have you to advance respecting the nature, &c., of INFLAMMATION?*

ANS. The word inflammation considered as a term, implies an increase of heat, and it is from this sense of it that it becomes so suitable an appellation to express the disease now under consideration. Inflammation has been classified into two leading important distinctions, namely, general or diffused, and local or confined; but as inflammation of any organ essential to life, may be, in a certain sense, considered as much local as that arising from outward injury; it would be better, I think, to divide it into internal and external. It is *internal* when some vital part or viscus is inflamed, that is situated in some internal cavity of the body, such as that of the cranium

or skull, the chest, and the abdomen, or belly; but it is *external* when it is outwardly situated, whether it be occasioned by an accidental or constitutional cause. I do not intend to be extensive in my remarks on external inflammation, but will merely state a few of its symptoms, causes and terminations, and then conclude by describing the treatment requisite for its removal. It will not be necessary to enumerate at this time the characteristics of *internal* inflammation, as such a description would have no proper reference to that division of it, which is denominated *external*, and to which we intend to confine our present observations; I would however just observe, before I enter into a detail of its symptoms, that what is called *general* inflammation consists in an increased action of the heart and arteries, whereas in that which is termed *external*, the vessels of the inflamed part only are excited, except in some remarkable cases, in which the circulatory system is generally deranged from nervous sympathy. The minor divisions of inflammation are systematically distinguished by the terms *chronic* and *acute*, *common* or *simple*, *morbid* or *specific*; it is *chronic* when of a slow, mild and lingering nature; and *acute* when its effects are immediate and powerful. It is *common* or *simple*, when its characteristics are general, and not extraordinary; and *morbid* or *specific* when the ordinary phenomena are not manifested; the most prominent or striking instance of the latter kind is seen when the lymphatic absorbents are inflamed in the

disease named farey. Having made those preliminary observations on the subject, let us now begin our description of the *symptoms*.

The first symptom of *external inflammation* is *swelling*; this is commonly occasioned by the dilatation of the small vessels, though it is sometimes, and not unfrequently caused by the pouring out of albuminous matter into the cellular membrane, this latter result is often the effect of blows, &c., which cause an extravasation of fluid in the surrounding substance; but the clearest instance of albuminous effusion, is the tumefied state of the submaxillary glands in strangles. I have also seen in *phlegmonous* inflammation of the hind leg, considerable tumefaction produced in a great degree, by the action of the exhalents, or the pouring out of a limpid exudation, named *serum*; the dilatation of the vessels is mostly present in the first stage of inflammation, and is occasioned by an increased afflux of blood to the diseased surfaces. The *heat* of the inflamed part is another and an invariable symptom, but varies in its extent, according to the degree in which the inflammation rages; if the foot be inflamed, the heat may be sensibly felt by the application of the hand to the surface of the hoof, or at the back part of the heels, but it is more conspicuously evinced by the almost immediate absorption of wet applied thereto; that is to say, if you dip such a foot in a pail of water, you will find it in a minute or two afterwards quite dry, whereas if the healthy foot be

so immersed, it will take some minutes before the moisture is thoroughly absorbed. There are other instances which might be referred to, to prove the existence of unusual heat in inflammation, but as I have stated my intention to be brief, I will omit them, and proceed to notice the next symptom, viz., *pain*. Whenever a part is inflamed, there is always more or less pain, according to the intensity or violence of the inflammation; I have seen several cases in which the pain arising from external injury, has been so great as to derange and affect the whole system; the pulse has been considerably quickened,—breathing much disturbed,—profuse perspiration has taken place, and the poor suffering animal has exhibited the most acute and distressing agony. Not that this is the invariable result of external inflammation, for it is comparatively speaking, seldom so violent as to produce such alarming characteristics as the above, but there is always *some* pain. Extreme tenderness of a part frequently betokens approaching supuration, and particularly so in cases of strangles; whenever, therefore, the horse thus affected is made suddenly to flinch, from the pressure of the fingers upon the inflamed glands, we may safely conclude, that they will not be long before they “gather and break,” or are made to discharge their contents.

QUES. *Having briefly noticed the nature and symptoms of external inflammation, proceed to describe its causes and terminations?*

Ans. The *causes* of inflammation are divided into remote or predisposing, exciting or occasional, and proximate or immediate; it is seldom that the *predisposing* cause has any thing to do with the production of external inflammation in the horse; I will therefore pass it over, and refer to the *exciting* causes, which I would divide into chemical and mechanical; one of the *chemical* causes is burns or scalds,—another the injudicious application of powerful blisters, besides which there are several others. I have frequently had to follow farriers of the “*vulcanian*” order, and to undo what they had been doing, by the use of their “*capital hot oils*.” I have also repeatedly seen inflamed swellings of the hind legs, named by a certain class of persons “*humours*,” which might have been removed in a few days by appropriate treatment, enlarged to such a prodigious size, as to become alarming, and wholly from the unseasonable and unsparing application of burning stimulants;—in short, many a needless deposit has been left—many a common placed strain or enlargement ended in subsequent callosity and induration, which might have been easily prevented by suitable and properly applied remedies: the above are only a few of the chemical stimuli, which produce and exasperate external inflammation. The *mechanical* causes are various, one of which is what is commonly called “*pricking* ;” by this very significant term, I mean that the nail of the horse’s shoe is driven into the sensible foot, either by the awkwardness

of the smith, or the unmanagable restlessness of the animal while shoeing; this produces inflammation, and not unfrequently suppuration, in short, if the matter be not timely discharged it will often end in the most obstinate ulceration. Wounds, bruises, blows upon the eye, &c., may be ranked among the many mechanical causes that occasion external inflammation. Lastly, its *proximate* cause may be briefly hinted at, I do not, however, think it necessary to cite the once popular theories of the ancients concerning it, but simply to state, that it consists in a change of the general or local action of the vessels, rather than any alteration in the quality of the circulating fluid. The *terminations* of inflammation include resolution, suppuration, effusion and mortification, each of which may be briefly noticed in their respective orders. Let us then first glimpse at *resolution*;—by this word we mean that the inflamed part or parts resume their original state, without any subsequent alteration in their natural structure, leaving no after deposit, swelling or the like, a termination that should always be accomplished if possible. Inflammation is sometimes succeeded by *suppuration*, in which case it is generally more violent than when it terminates in the former manner; there is more pain, more heat, and more general constitutional derangement present under such circumstances; but the most decisive symptom of its existence in abscesses, is the fluctuation or springing of the tumour from the pressure of the fingers;—in wounds the

suppurative process may be known to have taken place, by the appearance of a thick, white, healthy looking "*laudable*" matter, and it should always be promoted in those of the lacerated and contused kind, by means which we shall hereafter notice; but in organic or *internal* inflammation such a termination should ever be prevented, or else fatal consequences will inevitably follow. What is called *effusion*, also not unfrequently ensues from *external* inflammation:—by this term I mean the pouring out of coagulable lymph in the cellular substance, which must be removed by absorption, or it will leave a callous enlargement, or an indolent swelling behind. The last termination to be noticed is *mortification*. This is often termed *gangrene*, and implies 'the death of the part; it may be known first, by the dark coloured discharge before mentioned, and afterwards, if not stopped in its progress by the cold, flaccid, and tender texture of the flesh in the wound, and that immediately surrounding it; it is furthermore indicated by the constitutional symptoms then exhibited, such as loss of appetite, weak, fluttering pulse, cold extremities, quick breathing and rapid diminution of bodily strength. I should have observed in my former remarks on this head, that the swelling of the affected parts becomes enormous in size, extending itself in every direction, pervading the cellular membrane, and mortifying as it goes. It is caused by a fatal distension of the vessels of the inflamed surfaces, and a consequent loss of

nervous energy, animal heat, and so forth; perhaps in some few cases it may be brought into action more quickly than in others, from the constitutional susceptibility to this termination in the animal itself; it may, however, sometimes be suspended in its progress by the adoption of proper measures to assist the powers of the constitution, and enable it throw off the dead portions of the flesh from those that are sound underneath. I once saw this effect remarkably evinced in the case of a grey-hound, belonging to a sporting gentleman, whose stock I used to attend; she had a considerable swelling of one of the fore legs, from some unknown cause, which in spite of every means that were tried to remove it, continued to grow larger and extend itself, till it became one general, dark, livid looking mass, the color of which might be clearly seen through the white of her leg; I therefore administered the *tinctura cinchonæ*, or tincture of peruvian bark, in proper proportions, and repeated it twice a day, till the whole of the fœtid, offensive, mortified substance slipped off, and left the sinews, bone and vascular connexions of the limb at that part perfectly naked. It however after this, soon began to granulate, and by a little subsequent attention got quite well in a fortnight.

QUES. *What mode of treatment would you adopt to remove external inflammation?*

ANS. This would depend, in certain respects, upon the character or degree of it, or the circumstances that accompanied its existence. If the

subject were *plethoric*, it would be prudent to bleed from the neck vein, taking away from three to four quarts of blood, then to purge, and after its operation to give occasional doses of diuretic and alterative medicine; this is all the constitutional treatment that is generally required in the first stage of external inflammation, but even this, as to its extent, must be left to the judgment of the person by whom the patient is attended. In the *local* part of the treatment, there is often some variety arising from the causes that produced it, the parts affected by it, &c.; for instance, if the membrane lining the sheath of the perforating tendon be inflamed, or if there be, as the jockey's vocabulary has it, "*a clap on the back sinew*;" the topical remedies must consist in cooling, evaporating lotions, taking care to keep the inflamed parts almost constantly wet with them; but this plan of treatment would be very injudicious in deep and lacerated wounds, because it would prevent rather than promote the formation of matter. It is a fact proved by practical observations, that what would be beneficial and necessary in some cases of inflammation, would be highly improper in others; for example—in hard and painful tumours springing from bruises, and other causes we generally apply stimulants, in order to bring them to suppuration, whereas in inflamed eyes such a mode of treatment would be exceedingly injurious, inasmuch as it would increase rather than remove the violence of the symptoms. Again,

in inflammation of the *sensible laminae*, (*see foot*) we apply cold, in preference to hot poultices, and we do so, because we would prevent suppuration, and restore the feet by resolution; if the former termination, or the suppurative process, were to take place, it is not improbable, that in some desperate cases, the hoof would separate from the sensible foot, and the horse be thereby rendered totally useless; or if this were not the result, yet it would unavoidably prolong the disease far beyond the time required under the treatment above suggested. There are several other instances of this variety in the "*modus curandi*" of external inflammation, which need not be especially referred to, I will therefore give a few directions, as to the other means that are generally used for its removal:—namely. topical bleeding and counter-determination. *Topical* or local bleeding, where there is no constitutional excitement, is far more preferable to that called *general*, because it unloads the vessels immediately supplying the inflamed parts, without drawing so largely from the system; the advantages of this practice are seen in many instances, in "*laminated*" inflammation,—in sprains of the back sinew,—shoulder, &c., &c.,—particularly in cases of inflamed laminae, that is, when the blood is taken from the "*toe vein*," and copiously abstracted. What is termed counter-determination, is often absolutely necessary, and in general cases it is very beneficial; by the word *counter-determination*, I mean the act of determining the

inflammation from its original seat, to another less important part; this is accomplished by the use of rowels, setons, &c., and should always be adopted in the treatment of wounds,—constitutional enlargements of the hind legs, (except they arise from general debility,) and in other instances, which cannot be distinctly specified in our present remarks. The treatment of wounds in *joints*, in certain respects, is peculiar to itself, the description of which we intend to give under the article wounds. There is also some difference made in treating inflamed veins, to the general mode of removing external inflammation; if the integuments only be inflamed, of course the difference is very little, but if the vessel itself be affected, and its calibre enlarged by an accumulation of congealed blood, and other connecting symptoms follow; *then* the external orifice must be closed, either by the actual cautery, and repeated till the hemorrhage is stopped, or instead of this, it may be pencilled with the nitrate of silver, or lunar caustic, which will often accomplish this object, much more neatly and as effectually as the hot iron; should it however fail, the vein must be taken up by a ligature above and below, and the congealed mass between it cleared out, so that the part may become a simple sore, when it will soon heal. It ought, nevertheless, to be remarked by the bye, that this is seldom or never required, for it will generally submit to the former method of treatment, particularly if blisters be applied along the “*corded*

vein," to reduce the enlargement by absorption, and a mild dose of physic be given to assist in subduing the inflammation. Repeated blisters, (emollient poultices being applied between each blister,) with the above directions, and the removal of fungus from the orifice, (should it happen to rise), by the caustic tincture I shall prescribe when treating of *ulcers*, will generally cure the worst cases of diseased veins, occasioned by unskilful bleeding, &c., that is, if care be taken to keep the horse from feeding for the first two or more hours after closing the hole, to suppress the bleeding, and mashes be given with gruel for two or three days afterwards, instead of hay and corn, in order to prevent active chewing.

I will conclude the subject of external inflammation, by again remarking that there is a striking *variety* in the treatment thereof, and so extensive is this variety that no *written* description, however minute, can possibly include all the particulars comprehended in it: nothing less than practical ability, derived from considerable experience, can fully prepare a person to meet them, or enable him to direct his treatment accordingly. Let it suffice therefore to say, that the most usual plan of treatment is to bleed, purge, rowel or seton, foment or poultice, and apply evaporating lotions to the part, so as to remove it by resolution; if however suppuration cannot be avoided, or is desirable at the time, it should always be hastened by means of poultices frequently renewed, and assisted by the appli-

cation of some stimulant, such as strong camphorated liniment, or opodeldoc, or if particularly required at the time, a blister may be preferred. If the inflammation run on so violently as to produce gangrene or mortification, we must support the system by powerful tonics, such as peruvian bark, opium, camphor, and other antiseptic medicines, besides allowing the patient plenty of nutritious food. The following formula will be found of excellent service internally administered :—viz.

Peruvian Bark, 1 oz.

Carbonate of Ammonia. 2 drms.

Camphor, 2 drms.

Opium, 1 drn.

Aromatic Powder, 2 drms.

Oil of Cloves, 15 drops.

Mix well together, and give in a bottle of good port wine, and repeat once or twice a day ; should the animal be very costive leave out the opium, but if not, never omit it on any account, because it is able (in my opinion) to exert an influence more antiseptic, than any other article in the *Materia Medica*. The *external* applications in those cases, must be such as produce heat in the parts, and thereby co-operate in the separation of the dead flesh from the living ; medicines of this class include spirits of turpentine made hot, oil of vitriol and spirits of wine equal parts, or brandy and friar's balsam in similar proportions, but previous to their use, it will be proper, in desperate cases, to excise or cut out a great

part of the mortified flesh by the bistoury, in order that the applications may descend more readily to the sound parts, and thus stimulate them to throw off the gangrenous portions, and prevent the mortification going further ; antiseptic fomentations of chamomile flowers, poppies and ale-dregs or yeast and hot water, should also be persisted in before the dressing, because they will materially assist the former in promoting the much desired process of exfoliation, or "*sloughing*." Let me, however, strongly caution the practitioner against the folly of relying too much upon the efficacy of mere outward remedies, without the combined assistance of internal stimulants, the probability of recovery depending more upon the latter than the former. Having made these concluding observations, let us now refer to the next subject of discussion.

QUES. *What are the INTESTINES ?*

ANS. By the word Intestines, we are to understand that very long but convoluted passage from the stomach to the *anus*, which is generally called the bowels ; it is formed into certain distinct portions, each of which will be briefly noticed as we proceed. The bowels are generally divided into small and large, the former are sub-divided into duodenum, jejunum, and ileum, and the latter are distinguished by the terms *cæcum*, colon, and rectum ; although the intestines are arranged for the sake of description into small and large, still they form, collectively considered, one great canal, which reaches from the *pyloric*

orifice of the stomach, to the *spinchter ani*, or the "*fundament*," and is about thirty yards long; they are held together by an expanded fan-like membrane denominated *mesentery*, which adheres to the spine, and by its prolongations becomes the connecting medium of all the intestines; this membrane changes its phraseology into *mesocolon* and *mesorectum*, according to the parts with which it has attachment, it is the part through which the bowels are supplied with blood and nervous energy, the channels that convey that fluid to them are called *anterior* and *posterior* mesenteric arteries, and the nervous influence is carried thereto by means of the mesenteric *plexus*. However let us briefly notice the first bowel or *duodenum*, this takes its name from the latin word *duodeni*, or the number twelve, a term given it from its length in the human subject, being about twelve inches, but in the horse it is evidently longer, and therefore the phrase *duodenum* cannot be correct as it refers to him, but knowing of no other name to substitute in its stead, I will beg to continue the same appellation; and proceed to observe that the biliary and pancreatic juices are poured into it by the hepatic and pancreatic ducts. It is composed of three coats, namely, villous, muscular and peritoneal, and a secretion is also formed to defend the *villous* coat from the mechanical or chemical irritation of the intestinal mass. The *muscular* tunic has its circular and longitudinal fibres, by the united action of which the chyme is gently propelled.

This motion is by some called *peristaltic*, by others *vermicular*, from its resemblance to the creeping motions of the worm. The *peritoneal* coat is a continuation of that investment which wraps up, so to speak, the contents of the abdomen, and is termed *peritoneum*, it lubricates the latter, and keeps the viscera in their proper places. The second bowel is the *jejunum*, and is so named from its being generally found empty, its minute structure need not be specified; let us therefore notice the *ileum*, this is the last small intestine, and it derives its name from being situated in the iliac region, it has a valve-like formation at its extremity, or union with the *cæcum*, which is intended to prevent a regurgitation of the contents of the large bowels.

The large intestines may now be referred to; the first of these is the *cæcum*, it is suddenly united to the last mentioned bowel, and has its blind or closed end, from which circumstance it has probably obtained its name, it is not so wide as the colon is, but is, nevertheless, of equal importance, in the exercise of the intestinal functions; this intestine is generally full of hard dung in cases of spasmodic cholera, and requires the stimulus of a strong saline clyster to force its contents into the colon. The *colon* begins with rather a small calibre, but having passed on some distance in a contracted form, it suddenly enlarges into a long capacious canal, whose convolutions vary in size as they proceed in their course, till they terminate in the rectum. The

last bowel is named *rectum*, from its being straight, it is at this part we inject our clysters, and it is seldom that they go farther than to its union with the colon, it is thicker in its muscular coat than the other intestines, and ends with a protuberance, technically named *sphincter ani*; this is a body of small muscles commingled with fat and other matter, and its use is to close the anal opening after the expulsion of the fæces. The latter could not be expelled without the united action of the abdominal muscles, a fact clearly ascertained by observing the animal when "*dunging*." I do not now intend to treat upon the *physiology* of the intestines, that having been briefly noticed under the head digestion.

QUES. *As diseases of the bowels are so frequently mistaken, or wrongly distinguished, I will thank you to describe to me the nature &c. of ENTERITIS, or inflammation of the intestines?*

ANS. This is one of the most fatal disorders to which the horse is subject, it originates very frequently from ill treated, or long continued cholic, sometimes, however, it is produced from high living,—from over exertion,—drinking cold water freely while in a state of profuse perspiration,—from a sudden change of temperature, that is, from being brought from grass immediately into a close and hot stable; these are the causes that generally give rise to this dreadful affection, although it may sometimes occur from some unknown or rather concealed cause. Let it proceed, however, from what source it may, the

most prompt and efficacious means must be adopted to arrest its progress, there must be no trifling here, but we must begin to work immediately, or we shall inevitably lose our patient. The principal symptoms by which its existence is discovered, are constant restlessness, pawing the litter with the fore feet,—kicking the belly,—looking to the flanks,—lying down and getting up again,—with a feverish dryness of the tongue, which is seldom present in spasmodic cholie; these characteristics increase in violence or extent, till the pulse becomes remarkably quick, but small and thread like,—the conjunctive membrane of the eye is deeply tinged with red,—the horse breaks out into profuse perspiration,—mortification soon follows, and death closes the scene. To be more minute in our descriptions, we will observe, that the grand discriminating signs that distinguish it from mere spasm, are the following; viz., a deep continued red of the membrane of the eye, before mentioned,—a sharp, quick, corded and sometimes tremulous pulse,—the presence of considerable fever indicated by the state of the tongue,—the non-intermission of pain,—constantly up and down, extreme tenderness upon pressure of the abdominal rim or belly,—disturbed breathing,—and cold extremities. If these symptoms are clearly marked out, we may safely conclude that it is inflammation, upon the discovery of which, we should immediately proceed to draw from five to six or seven, yea, in some cases eight quarts of blood, and that at the first time

of bleeding, unless the patient faint before its abstraction, after this, we must "*rake*" the animal, and inject the following laxative clyster :—viz.

Epsom Salts, 4 ozs.
Sweet Oil, $\frac{1}{2}$ pint.
Coarse Sugar 4 ozs.
Warm Water, 1 Gallon.

This may be repeated every four or five hours, till an evacuation is obtained. The following drench must be given after the first injection :—viz.

Castor Oil, 1 pint and a half.
Warm Linseed Tea, 1 quart.
Powdered Opium, 15 grains.

Mix with the yolk of an egg, and administer to the horse with a drenching horn. If no laxative or purgative effect follow from the exhibition of this drench in twelve hours, one half of it may be given again, but followed up by clysters; as soon as the first dose of castor oil has been administered, the belly must be well rubbed with the following blistering composition, and repeated every two hours, until sensible counter-irritation takes place :—viz.

Spirits of Hartshorn, 4 ozs.
Spirits of Turpentine, 2 ozs.
Oil of Origanum, 1 oz.
Olive Oil, 4 ozs.
Powdered Cantharides, 1 oz.

If this fail, apply a strong mustard embrocation made of spirits of turpentine, liquor of pure ammonia and best mustard, equal parts, with a

little warm water to give it a very thin consistence, this will frequently produce the best effects. I should have observed also, in my previous remarks, that the bleeding should be repeated every four hours, if no relief is obtained, but decreased in quantity every time. The most necessary objects after venesection, are counter-irritation and clearing the faecal passages; if very obstinate costiveness continue, notwithstanding the repeated use of the oil, I should give the following without delay :—viz.

Barbadoes Alocs, 1 oz.

Subcarbonate of Potass, $\frac{1}{2}$ oz.

Gum Arabic, 1 oz.

Tincture of Opium, $\frac{1}{2}$ oz.

Hot Water, 1 pint and a half.

When dissolved and milk warm, give immediately. This may appear a very formidable remedy to some persons, but practical facts have established its efficacy in cases of obstinate constipation, beyond a doubt, in many repeated cases. Not that I would advise the use of this prescription; if the costiveness can possibly be overcome by any of the expressed oils, and even when it is used, clysters must be followed up closely, in order to promote its speedy operation. In all cases of enteritis, after four or five laxative clysters have been given, throw up warm water only, or linseed infusion, which will act as an emollient fomentation to the inflamed bowels. The fatal symptoms, or those that betoken approaching mortification are, very cold extremities,—cold

sweats,—red membrane of the eye,—an almost imperceptibly quick pulse,—grating the teeth,—cold or nearly cold tongue, and delirium, with considerable prostration of strength; a sudden cessation of pain, in addition to the signs just mentioned, may always be viewed as a sure proof of existing mortification. Throughout the whole of this disease, proper attention should be paid to the warmth and comfort of the animal, he should have his body covered, his legs bandaged, a good bed must be given him to roll upon, warm water or thin gruel should be offered to him, and when convalescent, thicker gruel may be horned down him a few times a day, warm mashes may be given, or if the attack occur in the summer season, he may be put into a short “bite” for a few hours in the day, but should not be allowed to return to dry food too quickly, nor permitted to be turned out into a richly succulent or luxurious pasture too suddenly, which will often cause a fatal relapse. Although the subject must be kept warm in his extremities, yet his stable must not be hot, but cool and well ventilated, and also very roomy, particularly during his violent paroxysms of pain, or else he may seriously injure himself.

QUES. *Is there not also what is called villous inflammation of the bowels?*

ANS. Yes, and it receives the name of *villous* from the seat of its attack; namely, the villous and not the peritoneal coat of the bowels, the latter covers the *outer* coat, while the former lines

the *inner* surface of the intestines. This disease is supposed, by some, to originate in some instances from a translation of fever to that part, others dispute this, and more wisely ascribe it to superpurgation, or the immoderate effect of purgative medicines, which sometimes proves fatal. I have seen, in some cases, considerable portions of mucus pass from the bowels with the faecal discharges, and cause excruciating irritation. One very particular case occurred some years ago, in the course of my practice, in which a respectable Druggist had given his horse too violent a dose of physic, and the result was, such a prostration of strength from the drastic effects of the ball, that he could not stand when he was lifted up; I immediately administered the following drench to him, and the effect was almost instantaneously beneficial; the horse "*pricked up his ears,*" began to feed, let his belly down, and very quickly recovered. The following formula contains the ingredients that were given:—viz.

Starch Mucilage, 1 quart.

Milk and Mutton Suet boiled together, 3 pints.

Sweet Spirits of Nitre, $\frac{1}{2}$ oz.

Tincture of Opium, $\frac{1}{2}$ oz.

I never bled him, because muscular debility was the prominent symptom, rather than fever or inflammation. I would however strongly advise, when inflammatory action is discovered, by all means to bleed, and that freely, but not so largely as in enteritis; in addition to this, I would also blister the belly, or apply the mustard embroca-

tion, and give the above mixture, repeating it if found necessary till the pain is removed, and the faecal passages are regular. The injection of an anodyne clyster might also be adopted, consisting of opium in some demulcent liquid, as thick gruel, or starch mucilage. This is all that is generally required, and will commonly prove effectual.

QUES. *Is the JAUNDICE or yellows a very common disease among horses?*

ANS. As a *primary* disorder it is not very common, but as a *sympathetic* affection it frequently occurs; by the word *sympathetic* I mean that it is the result of the liver's sympathy with some other organ or organs then affected, as the stomach, lungs, &c. It does, however, sometimes occur as an original disease, not that I now refer to what is termed *hepatitis*, or inflammation of the liver, for that is a distinct affection, characterised by evident inflammatory action, in connexion with other symptoms indicative of the present complaint. The jaundice appears to arise from an imperfect or morbid action of the liver, whereby the bile is increased in quantity, or altered in quality; it may be known by the following signs; viz., a yellowness of the membranes of the mouth, and inner surface of the eyelids, the inner parts of the eye are also often thus colored, the urinary fluid is tinged with the same colour, the dung is generally hard and covered with mucous, though in some cases it is soft and liquid, the animal is extremely dull and heavy,

off of his appetite and very weak. There is seldom any inflammatory tendency in the system, but a low fever accompanied with considerable debility and great stupor; these are the ordinary characteristics by which the disorder is indicated. Having therefore ascertained the nature of the disease, we must proceed to bleed, regulating the quantity according to the condition of the animal, extent of the fever, &c., but copious bleeding is objectionable, unless the strength and excitement of the circulation demand it, which may be known by the pulse being quick and strong, and the extremities unusually cold, &c.; in such cases "*spare not the flame*," but bleed largely, and afterwards inject the clyster prescribed under the head *intestines inflamed*, repeating two or three times a day, this will assist the operation of the following ball, which must be given about two hours after bleeding:—viz.

Barbadoes Aloe, 2 drms
 Calomel, $\frac{1}{2}$ drn.
 Tartarized Antimony, 1 drn.
 Powdered Myrrh, 2 drms.
 Castile Soap, 2 drms.
 Honey to form the mass.

Repeat the dose every day till it purges, and then suspend its use until the bowels are right again, after which, if costive, give the following fever ball every morning, till the fever, &c. has wholly subsided:—viz.

Antimonial Powder, 2 drms.
 Nitre, $\frac{1}{2}$ oz.
 Aloes, 1 drn.

Camphor, 1 drn.
 Castile Soap, 2 drms.
 Chamomile Powder, 2 drms.
 Honey to form the ball.

Three or four of these balls will generally suffice. If the bowels be loose or relaxed from the beginning, give the following ball instead of the aloes, &c. :—viz.

Calomel, $\frac{1}{2}$ drn.
 Opium, 1 drn.
 Tartarized Antimony, 1 drn. and a half.
 Cascarella Powdered, 2 drms.
 Honey to form 1 ball.

Repeat every day till the bowels are restored, when the above fever balls without the aloes may be given as we have just directed; a blister on the right side, or a rowel in the chest need not be applied, unless it be a clear case of hepatic inflammation, when they will be of great service. As soon as the fever has left, the yellowness nearly gone, and the patient is evidently mending, the annexed "*restorative*" balls will quickly restore the lost energies of an exhausted system :—viz.

Pure Sulphate of Iron, 1 oz. and a half.
 Peruvian Bark, 3 ozs.
 Camphor 6 drms.
 Opium, 1 drn.
 Powdered Myrrh, 1 oz. and a half.
 Oil of Aniseed, 1 drn.
 Palm Oil, to form 6 balls.

One to be given every other day. During the whole period of this disease, the animal's drink

should be warm, and when his appetite is returning a few sweet carrots with a little sweet hay may be given, with an occasional malt mash, till he is quite recovered. If it occur in the summer season, a few hours run at grass in the day (but not at night for fear of cold) might be allowed, indeed will be found highly beneficial; if the disease take place in the winter, attend to the patient's comfort, but by no means keep him in a hot unventilated stable. I have been rather minute on the present subject, in order to meet peculiar cases, but it may be observed by the way, that bleeding, opening the bowels, and a few stomachic or tonic medicines subsequently given, is all that is generally required.

QUES. *What are the KIDNEYS, and of what service are they in the animal economy?*

ANS. They are two very important glandular organs, and are situated in the abdominal cavity, one of which, or the right kidney, has attachment to the edge of the liver, while the other, or left, is more posterior in its situation, being contiguous to the spleen; they are not always precisely of one shape, even in the same animal, but their general form may be conceived by an examination of the common kidney bean, to which they bear a very striking resemblance. They are surrounded in some animals with a considerable quantity of adipose substance, but the horse, being designed for services requiring greater activity than the former class of creatures, has much less of *adeps*, or fat about his kidneys than they

have, although they are always covered with a membrane lined with this substance. These organs present in their entire structure a most exquisite piece of organization, their external surface is called their *cortical* portion, probably, because it *invests* the more internal parts of this viscus, it is extremely vascular, and is between a brown and red in its colour; their more internal parts are denominated their *tubular* and *medullary* portion, which is composed of an incalculable number of very small tubes, that increase in their calibre as they unite with each other in their course, until they end in the *renal* pelvis, pouring the urine they convey into ~~that~~ cavity. This concave ~~centre~~ of the kidney, whose membranous surface was called by a veterinary writer of the old school, an expansion of the ureters, receives the urinary fluid which is secreted from the "*renal tissue*," and carried into it by the tubular orifices before mentioned. It derives its name of *pelvis*, I imagine, from its concavity or resemblance in point of form to the hollow of a bason, and it sends forth a canal or pipe named *ureter*, which conducts the urine into the bladder near the neck, where it is inserted; there is a pelvis to each kidney, and a ureter to each pelvis. These two tubes or ureters pass in their course from the ~~kidneys~~ to the bladder in a very curious direction, they are muscular and membranous in their texture, and it is by their muscular coat that they are able to drive the urine forward into its proper receptacle. The renal organs are

supplied with blood by the *emulgent* arteries, which are two exceedingly large vessels, and are branches of the posterior *aorta*; the blood is returned from those viscera by certain veins, originating from the posterior *vena cava*, of the same name as their accompanying arteries, or those just mentioned, and the *renal* plexus furnishes them with nervous influence, and extreme sensibility; there are also two glandular appendages on the anterior surfaces of the kidneys, now called *renal capsules*, but formerly *capsulae atrabiliaræ*, they were thought to be "*deputy kidneys*" by ancient anatomists, but their use has never yet been fully known, they are supplied with blood from the same vessels as the kidneys are, and their form may be ascertained by an examination of those organs.

QUES. *What remarks have you to offer relative to the physiology of the kidneys?*

ANS. Their principal use is to form a fluid called urine, for which purpose they are abundantly furnished with blood from the emulgent arteries, they are also highly sensitive, which is imputable to the spread of the renal plexus over their surfaces, and their excretory ducts serve to pass off redundant and noxious ingredients from the circulating mass. It is generally allowed that the urinary fluid contains certain particles, which if not removed by the secreting action of those two grand animal laboratories, the kidneys, would be productive of disease, and

probably death. These organs may be considerably acted upon by different stimuli either mechanical or chemical; the most common *mechanical* stimuli to them are violent exercise, heavy burdens upon the loins, &c.; the *chemical* are diuretic substances carried to them through the medium of the circulation, which will act specifically upon them; medicines of this class have already been noticed under the head *diuretics*. These organs are also excited to increased action from mere sympathy, or their nervous communications with other parts of the system. The most usual instance we have of this principle in the horse is seen in the connection between them and the skin, in the summer when the latter throws off more of the cutaneous discharge, or what is commonly called sweat, the former or kidneys secrete comparatively little urine; but on the contrary in the winter, the perspiratory exudations are but small in quantity, and seldom form more than the insensible perspiration, but the renal organs elaborate a much greater portion of the "*saline fluid*" than in the former season. These wonder-working specimens of the economy of animal function form but a small part of the many exquisite apparatuses that are employed in the performance of those admirable offices of nature, which so loudly speak, the hand that rules them is divine. Let me conclude this subject by stating that I have omitted entering into a definition of the analyzed properties of the urine,

because I view them as belonging more properly to the interesting departments of that important science called chemistry.

QUES. *What are the diseases which these organs are subject to?*

ANS. They are subject to *diabetes*, which we have already noticed, to *hematuria*, or bloody urine, which we shall hereafter treat upon, and to *nephritis*, to which we will now direct our especial attention. By the word *nephritis* I mean an inflammation of the kidneys, this disorder is not so frequent with the horse as are many of his complaints, but sufficiently common to demand our present consideration; it is often mistaken for *cystitis*, as it is termed, or inflamed bladder, but oftener still, for simple stoppage of urine. In order, therefore, that a correct knowledge of the disease may be formed, and proper remedies adopted, it will be necessary to describe its causes, symptoms, and terminations, and the mode of treatment required for its removal; one of the most frequent *causes* of the present affection is the inordinate use of diuretic medicines. Grooms and other stabularians are generally so very fond of giving "*a few urine balls now and then*," or on such trifling occasions, that they employ them so often and in such tremendous doses, that the kidneys absolutely become inflamed from their excessive administration, their secretory functions suddenly cease, and nephritis of the worst kind follows, and all in consequence of undue and repeated chemical excitement. Another

cause is *metastasis*, by which I mean, the translation of disease from some other part to them. It is a fact well known to the observant practitioner, that inflammation will often shift from one part to another; a general inflammatory state of the system frequently centres itself, so to speak, in the feet, and produces inflamed laminae, or what is shrewdly termed by a certain class of sagacious horse fanciers "*a fever fell down in the feet*;" again, very painful swellings of the hind legs of an inflamed character, will often suddenly appear after an attack of organic or internal inflammation, this I have repeatedly witnessed, and consider it to be an effort of nature to relieve herself. These and several other instances equally as convincing, might be adduced to establish the probability of nephritis, being sometimes produced by metastasis, but in all such cases the translation of the disease may be attributed to a susceptibility in the organ secondarily attacked, to become thus suddenly affected. An imprudent transition of the animal's situation from a warm or heated temperature to one that is exceedingly cold, may also be ranked as another fruitful cause of this complaint; the continuance or repetition of wet upon the region of the loins in stormy or inclement weather, may be classed as another, particularly if the horse is made to stand in such a state exposed to the keen blast of an easterly wind, without any covering on his back. Indeed, I consider that this kind of treatment will produce it almost as naturally as fire will produce heat,

or the sun impart its light; if it does not have this effect it is certainly more from "*good luck than good looking to*:" nephritic inflammation thus occasioned, is caused, secondarily speaking, by the consequent suppression of that cutaneous discharge so commonly denominated sweat, through which the blood is driven from the capillaries, or extreme vessels, to the centre or to some important viscera, disposing them to excitement and disease. Severe *exercise* is also productive of nephritis, in which case the lumbar muscles (particularly those named *psoas magnus* and *psoas parvus*, on which the kidneys lie, or to which they are attached), from the increased action which they are put to, become inflamed themselves, and communicate their own inflammation to the renal organs by sympathy, or else produce it therein by pressure, friction and the like; however, without speculating on the *manner* in which immoderate exercise may probably occasion this disease, let it suffice to say, that it is a matter of certainty that it *will* produce it. Some sudden jerk, or extraordinary exertion will likewise cause its appearance, such as forcibly backing the horse with a heavy load, or driving him furiously down a hill under such circumstances; these and other similar causes have produced it in scores of instances. It has been thought that calculous matter accumulating in the *renal* pelvis is a frequent cause of nephritis, the action of which is chemical irritation, it may be so, I cannot contradict it, but must confess I have never known inflammation to follow from

such a cause, although I remember the case of a horse in which concretions of this kind, I had reason to think, had been forming some time in the right kidney, yet causing no material derangement in the animal's general functions, till within the last day of his death, at which time he suddenly dropped down in his harness and died instantaneously; on *post mortem* examination, I found no marks of previous inflammation, but a great part of the medullary tissue of that organ was converted into a stone, which was lodged in its pelvis. Lastly, diuretic provender may be included as an occasional cause, the manner of its operation need not be stated, the fact is sufficient, I have however comprised it in my list, because I thought it would be the last thing the owner would apprehend as the cause of this affection, and therefore might aggravate the symptoms by an unconscious selection of improper food. The kind of provender that generally proves diuretic in its effects is bad hay and musty oats, but more particularly fresh green tares; I have seen them in the early part of the summer act so strongly as to produce diabetes, and would have caused nephritis if their use had not been suspended. This effect is, however, far from being invariable, for tares are doubtless excellent food for horses if moderately given, but still it will sometimes follow from an improper use of them.

Having briefly noticed the causes, let us now refer to the *symptoms*. One symptom is that of looking round to the flanks, and by so doing

showing in some degree the seat of his pain, the others are a straddling of his hind legs wide apart,—a flinching when the loins are pressed upon,—frequent attempts to stale, throwing out but few drops at a time and that often bloody,—considerable fever, quick pulse, cold extremities and great stiffness in moving. These are the general indications, but no plan of symptoms however judiciously drawn, can be sufficiently accurate without examination "*per rectum*," that is by introducing the arm into the last bowel. If the kidneys be inflamed the bladder will not be found tender on being pressed upon by the hand, as is the case in cystitis, nor will it be full; this is the only correct criterion by which we can safely decide, I would therefore recommend it, in all cases where it is doubted which is the seat of the attack, the bladder or kidneys. The *terminations*, as they are called, of this disorder, are the same as those of external inflammation; resolution, or the restoration of the kidneys to their natural standard, is the only one to be desired, and may be accomplished by certain means which I shall shortly notice; suppuration, or the formation of matter is sometimes, though seldom, the result of nephritic inflammation. I once saw a case of this kind in which nearly the whole renal tissue was converted into pus, the quantity of which could not be less than two quarts, the other kidney was healthy, and appeared to have carried on, though imperfectly, the functions of that which was diseased. Lastly, gangrene or morti-

fication may be noticed as a termination, this can only be known to have taken place by examination after death, when the kidneys will be found considerably enlarged, black and loose, or flaccid in their texture, breaking into pieces by the slightest pressure.

QUES. *Having treated upon the causes, symptoms and terminations of this disease, give me a description of the treatment necessary to remove it?*

ANS. If the patient be in fair condition, take off from five to six quarts of blood, and should the pulse and other febrile symptoms remain undiminished after the lapse of five or six hours, repeat the bleeding, but in smaller quantities, an aloetic purge dissolved in linseed tea may be given, and the following clyster thrown in soon after:—viz. linseed three or four ounces, marsh mallows five ounces, boiled in six quarts of water down to five, then strain off, and add half a pint of sweet oil, when milk warm put in it one drachm of opium and give. Let not the theoretical modernist give the unmeaning sneer to this kind of clyster, because preferred to one of simple warm water, or that of salt and thin gruel, for in no case perhaps, is the good effect of anodyne-demulcent injections, more strikingly exhibited than in the present disorder, they sweetly soothe, as they lie in the bowels, the surrounding connexions of the then inflamed organs, and give considerable ease to the suffering animal. The same clyster (omitting the oil and opium) may be repeated with evident advantage two or three times in the day,

if the patient is not better. As it regards the aloetic purge just recommended, I would here observe, that some persons prescribe *oily* laxatives, as being milder in their operation than the aloes, but this is a punctilio in practice which I have never yet found necessary to insist upon, having always witnessed the best effects from the latter, particularly if given in mallow decoction, or linseed infusion; this, however, may be left to the choice of the practitioner himself. The next point in our treatment is counter-irritation, to effect which neither blisters nor turpentine applications must be applied, because they by absorption become a direct excitant to the kidneys, but the following mixture should be well rubbed on the loins, and a sheep skin covered over all :—viz.

Spirits of Hartshorn, 2 oz.

Tincture of Camphor, 2 oz.

Best Powdered Mustard, $\frac{1}{2}$ lb.

Add water sufficient to make it the consistence of cream. With respect to the internal medicines necessary after the purgative, it may be remarked that no diuretic ingredients should be given, they having the same effect as the outward applications we have just forbidden. A late popular author in order to avoid this result recommends the use of opium, ipecacuanha, acetated liquor of ammonia, and other articles, whose properties he considers to be diaphoretic; I highly appreciate the superior abilities of this talented writer, and cannot but concur with him on this point,

them, in some respects, as it regards their functions. They are classified into *capsular*, *connecting* and *suspensory*. The capsular are such as surround joints, and prevent the escape of *synovia*, or joint oil; ligaments of this description belong to the knee and hock, and other joints of the same nature. The connecting ligaments are those that envelope the more external parts of a joint, and are of a different form to the latter, they serve to keep the parts to which they are fixed more firm and secure than they would otherwise be. The last order, or the suspensory ligaments, are such as suspend parts. An instance of this kind is that which joins, or rather holds the liver to the diaphragm, but the most striking specimens of this sort of ligament, are the *ligamentum colli*, or ligament of the neck, and the elastic suspensory ligament of the *sessamoid* bones. They are designed to give strength to these joints when under the force of superincumbent weight, or the concussion which takes place when the limbs are in strong action.

QUES. *What is the LIVER?*

ANS. The liver is an organ too well known to need a minute description, we will therefore merely state, and that briefly, its situation, use and formation. It is *situated* partly in the right and partly in the left *hypochondrium*, its convex portion lies upon the diaphragm, and upon its concave surface are placed the small bowels, and some other important organs. Its chief use is to form bile, and thus to purify the blood, which is

brought to it from the abdominal viscera, on which account it is called an *excremental* gland ; it effects this by the supply of *venous* instead of *arterial* blood ; but how or in what manner the biliary secretion, viewed as a process, is elaborated is equally mysterious, with many other instances of animal function that are still involved in deep obscurity. I will therefore leave it, and refer to the *formation* of this viscus, or its organic structure ; it is capacious in size, and lobulated in *form*, by which term I mean that it is divided into several divisions called its *lobes*, two of which are large and the others small, its substance is glandular, and the seat of those numerous secretory and excretory tubes that are engaged in the elaboration of the bile, and its subsequent collection and conveyance into the hepatic duct ; its interior is also made up of nervous ramifications, venal branches, and interstitial substance, and the whole viscus is furnished with blood for its own nutrition, independent of its secreting office, by the *hepatic artery*, which is a vessel that proceeds from the divisions of the *posterior aorta*, and is very small, considering the superior magnitude of the organ which it supplies. The materials from which the biliary fluid is separated, are derived from the *venæ portæ hepaticæ*, or vessels that carry venous blood to the liver, for the important purposes of secretion. These vessels spring from a trunk called *vena portæ*, which is formed from those veins whose office is to return the blood from the chylopoetic viscera ; after the qualities

of the venous blood have been expended in the formation of bile, it is brought back again by the hepatic veins, and carried from thence into the general circulation. The *nerves* which give sensibility to the liver, spring from the great *sympathetic*, and form an expanded web termed *hepatic plexus*; they are not very extensive in their communications, to which circumstance may be imputed the comparative insensibility of this organ, when contrasted with other viscera of much less size, and apparently minor importance than itself. There are ~~also~~ *excretory* ducts or tubes in this viscus called *pori biliari*, or biliary pores, into which the secreting terminations of the *vena portæ* enter; they ~~are~~ originally very small, but gradually enlarge in their calibre, till they form one superior pipe, named *ductus hepaticus*, or *hepatic duct*. This tube is seen on its concave surface, and proceeds in its course a short distance, when it enters the *duodenum*, or first bowel.

QUES. *What remarks have you to offer concerning the disease commonly called LOCKED JAW?*

ANS. This disorder is a spasmodic affection of the nerves, which produces a general contraction of the muscles. It may be known by the following symptoms:—viz. the projection of the haw of the eye when the head is elevated, causing the body of the eye to sink completely in its socket,—the tremulous agitation of the tail,—a universal stiffness of the whole body, and lastly, which is the most characteristic sign of all, by

the fixed and immoveable state of the jaws. These are the most prominent symptoms when the disease is established, but in the commencement of it they are not so violent, although precisely the same in their nature. Respecting the *treatment* of this disorder I shall say but little, because all the proposed remedies after a fair trial, have in nineteen cases out of twenty, totally failed; some recommend affusion of or immersion in cold water, others prescribe the use of antispasmodics, while others depend entirely on copious bleeding, with the application of a powerful blister along the whole spine. The treatment I generally adopt is to bleed freely, blister the neck and spine, insert rowels, administer anti-spasmodic drenches down the nostrils, but always dissolve them in some mucilaginous infusion, such as linseed tea, &c., in order to prevent their otherwise chemical irritation upon the nasal membrane; in addition to this I first inject purgative clysters, and afterwards clysters of opium and assafœtida in thin gruel, about two drachms of each, in two quarts of the liquid. The anti-spasmodic medicine I administer internally, is in the following proportions:—viz.

Spirits of Hartshorn, 1 oz.

Camphor, 2 drms.

Opium, 2 drms.

Brandy, 4 oz.

Linseed Tea, 1 pint.

This is one dose; the patient should have all the advantages of cool air, but never suffered to be

cold in his extremities. Let me conclude my remarks on the disorder now under consideration, by observing, that for further information as to this terrible affection of the nervous system, a more voluminous treatise on veterinary pathology might with advantage be consulted.

QUES. *Give me a description of the structure &c., of the LUNGS?*

ANS. The lungs are those organs which are engaged in the important process of *respiration*, or the common act of breathing. They are situated in the cavity of the chest, and are lobulated in their structure, that is, they are divided into certain distinct portions called their *lobes*. Their two great divisions are named *right* and *left* lobes, each of which is subdivided into smaller ones denominated *lobules*; the part that thus divides them is termed *mediastinum*, and is formed from a duplicature of the *pleura*, or that membrane which lines the sides of the *thorax*, or chest, and by continuity spreads itself over the external surfaces of the lungs. The lungs need not be defined as to their peculiar shape, let it suffice to say, that they are made up of the large and small branches of the wind-pipe, of blood vessels, &c., and also interstitial substance called their *parenchyma*; a delicate mucous membrane lines the inside of the larynx, or top of the great air tube just mentioned, and continues till it reaches its minute bronchial ramifications, where it forms little cellular bags, denominated by anatomists *vesiculæ pulmonales*, but in plainer

language air cells. It is through the medium of those cells that the air is diffused over the substance of the lungs, and becomes the cause of their singular lightness, from which circumstance they have, probably, derived the vulgar name of "*lights*." These organs are thought to be *passive*, which means that they take no active part in the motions called inspiration and expiration, but merely receive the air thrown into them during the inspiratory act. This however we leave without disputing upon, and beg to state, that they are chiefly supplied with blood by the pulmonary artery, which bifurcates into right and left portions, the latter furnishes the left lung, the former the right lung. After it has entered those bodies it ramifies so extensively, that its most minute ramifications are too small and numerous to be discovered without microscopic observation. Two arteries called *bronchial*, give nutriment or life to their parenchyma, and also beautifully convolute the external coats of the pulmonary artery, as well as the extreme branches of the wind-pipe. The pulmonary veins take their origin from the extremities of the pulmonary artery; they begin very small but enlarge as they proceed, till they form one great trunk, by which the blood is conveyed to the left auricle, to be received by the same ventricle, and then by the circulating channels carried over the whole system. The lungs are not endued with sensibility equal to other organs, not superior to themselves in point of importance, but what measure of it

they do possess is derived from the communications of the *par vagum*, or eighth pair of nerves, and the great *sympathetic* which form a delicate web called *pulmonary plexus*; they are furnished with absorbents whose use is to prevent serous accumulation, or *hydrothorax*, and to answer other purposes connected with the functions of the lungs. It remains, before we conclude this subject, to remark that a fluid is exuded from the sides of the chest, to lubricate the viscera of that cavity, and prevent adhesion, a super-abundance of this fluid, which is called *liquor plura*, constitutes, as before observed, the disease named hydrothorax, or water in the chest, and is frequently the termination of that terrible affection, inflammation of the lungs and chest. Let us now refer to the physiology of the lungs.

QUES. *What do you mean by their physiology?*

ANS. By this word I mean a knowledge of their functions, use, and economy, considered as organic bodies. The common acts of inspiration and expiration are the result of mechanical influence, (so to speak), but it is also truly, indeed vitally necessary that a chemical apparatus should be put into operation, as well as the former, in order that certain indispensable changes might take place, to prepare the circulating fluid for the purposes of nutrition, reparation, &c.; these changes will be briefly noticed in our future definitions of the chemical functions of the lungs. Let us therefore in attempting to define the great act of respiration to divide it into two parts, viz.,

its mechanical and chemical processes. First the *mechanical* process of breathing, this is brought about by the agency of certain muscles, including the inspiratory and expiratory; the former order expand the chest and admit the air *into* the lungs, and the latter expel it *from* them, each of these muscles has obtained its name according to its situation, offices, &c. Those engaged in *inspiration* belonging to the horse are technically named *levatores costarum*, because they raise the ribs, the external and internal *intercostals*, because they are *between the ribs*, the *transversalis costarum*, or *transverse muscle* of the ribs, the *sterno costalis*, on account of its origin from the sternum or breast bone, and its insertion at the ribs; the *serratus longus*, from its size and saw-like appearance; the *intercostalis communis*, or common intercostal; and the *diaphragm*, which is the midriff or muscular partition that divides the chest from the abdomen. This was considered by the celebrated *Haller* as the noblest muscle next to the heart, in the whole system, this may be inferred from the title which he gives it, he calls it the "*nobilissimus post cor musculus*," or noblest muscle after the heart; there are other muscles occasionally called into action during disturbed respiration, but their enumeration cannot now be given. I would therefore refer you for a description thereof, to some voluminous anatomical treatise under the head *myology*. The expiratory act, or that by which the air is expelled, does not require such active agency from the

muscles as the former does, but appears to consist more in a relaxation of the inspiratory, than any particular effort of the abdominal muscles, the latter, however, certainly do act in some degree, for they contract the thorax, and by forcing the contents of the abdomen upon the diaphragm compress the lungs, and the air is expelled. The common muscles of *expiration* are called *obliquus externus abdominis*, *obliquus internus abdominis*, *transversalis abdominis*, and *rectus abdominis*; for a knowledge of the meaning, origin, insertion, &c., of these muscles, I would recommend the reading of Percival's excellent work on the anatomy of the horse.

QUES. *Having briefly treated upon the mechanical process of respiration, let me request you to describe the chemical functions of the lungs?*

ANS. To do this it will be necessary to notice the component parts of the atmosphere, or air we breathe. The air is an elastic constituent fluid composed of distinct proportions, to which have been given certain appropriate names, according to their properties and compositions; it may be just remarked by the way, before I begin to describe them individually, that to enter into an enlarged description of the various chemical phenomena connected with respiration, is more than I intend to undertake, nor do I mean to notice the ingenious speculations offered by certain popular authors concerning it, such as those of Blumenbach, Monsieur Lavoisier, Dr. Crawford, Sir Benjamin Brodie, and others; such a detail

would be exceedingly tedious, if not also unsatisfactory. I will therefore pass by them, and commence by directing your attention to that vital constituent of the air called *oxygen*. This portion of the atmosphere is so named from its disposition to acidify, in proof of which we have only to refer to its peculiar effect upon metallic substances, the most striking instance of which is its influence upon iron. This metal if exposed to the air will in a few days have rust on its surface, which is nothing more than an oxyd, or an imperfect acid. However to the point, let us notice it as the basis of atmospheric air, it has received the name of "*vital air*," because no creature with respirative organs can live without it; this fact has been realized by certain experiments truly illustrative of it, one of them is that of putting a small living creature under a glass constructed for that purpose, in which state this vivifying portion of the air has been wholly excluded, and as soon as the latter was totally expended, and no fresh supplies could be obtained, death immediately followed. Even vegetable productions cannot live without it, for when deprived of it they shortly wither, droop and die. The necessity of a liberal allowance of this salubrious principle for the preservation of health, both among human subjects and animals, is daily seen, for while only allowed a diminished portion of it, they become feeble in their energies, or diseased in their system. Although this is so absolutely necessary to life, yet unless it is

breathed in combination with its proper proportions of azote, or nitrogen gas, it will prove exceedingly injurious and even fatal. Animals confined to oxygen gas exclusively, appear to die from over excitement, and indeed smaller quantities of it, not amounting to pernicious proportions, will produce a kind of intoxication upon the person exposed to its action; this is owing, probably, to a redundant evolution of caloric, during its decomposition in the lungs. Another property of oxygen is to change the colour. This fact has been clearly established upon the basis of actual experiment, there can, therefore, be no need for a description of the manner in which this change upon the circulating fluid is produced; if however the inquisitive should desire further information, on this particular point, they can consult the best authorities on this pleasing topic of pulmonary physiology with considerable profit and interest. Lastly, we will notice one more important quality attached to this constituent of the atmosphere; namely, its power of co-operating in, though not entirely, producing animal heat. I mean by this term *animal heat*, that temperature which the body maintains while in a state of vitality; this is partly owing to the disengagement of caloric, which is thrown off from the oxygen in the act of inspiration. The term *caloric* means the principle of *heat*, which is derived not only from this portion of the air, but also from other substances, such as the chyle, &c., although we admit that the former

furnishes the most. To describe the different theories broached upon the nature, production, effects, propagation, &c. of caloric, considered as an operative principle, would be perfectly out of place at this time, such a description having no direct reference to the present subject; we shall there confine our observations solely to the production of animal heat, as constituting a part of the physiology of the lungs; to prove that heat is involved in the system, through the inspiration of air into those organs, we might refer you to the fact that arterial and venous blood have both been distinctly mixed with equal parts of water, and the former imparted a greater heat than the latter. Again, subjects have been strangled, and the blood contained in the arteries was found warmer than that of the veins, and why so? we answer, because the latter had not since its return from the viscera and other parts of the body, yet come in contact with the air through the medium of the *pulmonary* circulation. Besides these facts, we have also further proofs of this theory, from inference as well as practical demonstration. To what, I ask, can we impute the increased temperature of persons or animals when engaged in strong and violent exertions, particularly that of horse racing, but to the super-abundant absorption or rather inspiration of the oxygen from the atmosphere? in which cases, nature in order to prevent a fatal accumulation of this principle, sets about its removal by that cooling process perspiration. The produc-

tion of animal heat is, however if minutely considered, a profound mystery to man; because several ingenious opinions have been formed concerning it, but totally differing from each other, and after all, the subject still remains involved in profound obscurity. We would however remark by the way, that the doctrine of nervous energy as productive of it, in contradistinction to that of oxygenic influence has been ably advocated by Sir B. Brodie and others. Let us now proceed to notice, by way of conclusion, *nitrogen gas* and *carbonic acid gas*, as forming the remaining portions of the atmosphere; it is generally considered that the former of these, if breathed alone, will destroy animation, although its combination with the other parts of the air is necessary to sustain life, it will destroy combustion alone, whereas oxygen is the true supporter of it. I shall not attempt to give a minute description of this principle, let the observations, therefore, just made suffice, and permit me finally to notice *carbonic acid gas*, this is much the smallest portion of the air, being supposed to form not more than one thousandth part of it; it is highly destructive of animal life, but is always inclined from its specific gravity to descend, from which circumstance it is found in its concentrated form, or is more abundant, near the earth, or in subterraneous caverns. This æriform fluid is also produced from several other substances, either by fermentation or other causes, and will destroy combustion immediately; it has been called

“fixed air,” and may be found in ale casks in abundance, where it will extinguish the light of a candle in a minute; I before remarked that it would destroy life, this brings to my recollection a very singular fact illustrative of this assertion, namely; two men were put into a beer punchcon to clean out and remove the stale dregs that had accumulated at the bottom, but no sooner had they got into the cask, than they fell down prostrate, being suddenly deprived of all physical strength; it however fortunately occurred, that a timber carriage, was going by the common brewery establishment where it happened, at the very same time, and the chain was immediately taken off and used for the purpose of dragging out the victims of this life-destroying gas; the men on being laid flat upon their backs appeared to be lifeless. but in a few minutes afterwards, returning animation appeared in the muscular action of their eye-lids, and other parts of their face, in the occasional sigh or faint inspiration, and by other striking symptoms then exhibited, till by fresh supplies of pure air which they received, they gradually and perfectly recovered. Having stated what I conceive to be the essential points connected with the physiology of the lungs, in as brief and explicit a manner as I possibly can; I will leave this delightful subject, and refer you for further information to some elaborate treatise upon the respiratory functions, in which it is more amply and superiorly illustrated.

QUES. *Having described the anatomy and physiology of the lungs, now define that most frequent affection to which they are subject, named PNEUMONIA?*

ANS. The word *pneumonia* is used by medical nosologists, to express the disease more commonly named inflammation of the lungs. In order to do justice to this important subject, it will be necessary to treat distinctly upon its symptoms, causes, terminations, and the treatment necessary to subdue and remove it; the preceding symptoms are a shivering fit,—extreme dullness,—unwillingness to move,—loss of appetite, and a slight disturbance of the breathing,—these are followed if not removed by more decisive characteristics, such as cold extremities—an indistinct, oppressed pulse,—expanded nostrils, considerable heaving of the flanks, (sometimes actually exceeding the pulse in point of quickness), a purple colour of the nasal membrane,—striking redness of the *conjunctiva* of the eye,—pointing of the animal's nose to his sides, (a symptom mistaken by the mere superficial observer, for a species of cholera), a fixed and wide position of the fore quarters,—with extreme or rapid action of the muscles of respiration. The patient very seldom lies down, or if he does, it is only for a few minutes, on account of the increased difficulty he feels in breathing while in that posture, his countenance betokens great inward pain, and his mouth is hot and dry, indeed the symptoms often

increase so rapidly in their violence, that the horse sinks in a few hours after his attack, and suddenly drops down and dies. The signs of approaching, or existing mortification, are a universal coldness over the surface of the body, particularly the extremities, and often the tongue, the teeth grate, and if the blood be drawn at this time, it will trickle down the neck as thick as treacle, rather than flow freely from the venal orifice,—the pulse can scarcely be felt at the heart, much less at the artery, and the animal is evidently dying. The *causes* of this disorder are various, the most frequent are changes of temperature, immoderate exertion, and suppressed perspiration. Let us briefly notice them in their proper orders. First. *changes of temperature*; these may consist in a sudden transition from heat to cold, or cold to heat, the latter is most common; I am aware that many practitioners advocate the former theory with considerable ability, but from the observations I have been able to make, I am inclined to think that *heat* is oftener the cause than cold. This may also be inferred from analogy, or comparing human with animal pathology, it is a fact, I conceive, disputed by none, that this affection is conspicuously less prevalent among the peasantry of this country, who have abundant opportunities of enjoying the pure breezes of the open uncontaminated air, than it is with those who reside in close or confined places, such as the metropolis, &c.; many of the latter class of persons generally live a life

of almost perfect "*domesticity*," as a late veterinary author terms it; in consequence of which, they are repeatedly attacked with pneumonia in its worst forms, or else become the subjects of some slow chronic affection of the lungs, whereby they are made to drag out a lingering existence, under the wasting, destructive influence of pulmonic disease. Indeed, I think it might be clearly ascertained, could the medical records of every practitioner be submitted to examination, in order to compare the difference, that the number of pneumonic cases, as occurring among individuals who are shut up in offices, schools, &c., when contrasted with those whose occupations are more healthy, and do not require them to breathe the fumes of an unwholesome heated atmosphere varies considerably, the former far exceeding the latter in their proportions. This remark will hold equally as good in reference to the diseases of the horse. How seldom do we see this disorder rage in farmers stables, we may witness mange, surfeit, farcy and other complaints, which are the result of poverty and hard work, but pneumonia is of very unfrequent occurrence, this may be imputed to the cool and even cold condition of their stables; but on the contrary among post and coach horses, those of waggon proprietors, the high-bred hunting studs, of livery establishments, and those of sporting gentlemen, it repeatedly occurs; and why so? We answer, because they are generally brought under a system of artificial management, in which

they are obliged to breathe the vapours of their own breath, urine, and a heated atmosphere. In short, I may say, that I have had twenty cases among the latter to one of the former. Another cause is *immoderate exertion*, not that this will produce it without the concurrence of hot air, and other causes; it will, however, more readily dispose the lungs to an attack of inflammation, than they would otherwise be, particularly if the subject be in an unprepared state for severe exercise. I now chiefly refer to the horse that is pampered up by the preparatory processes of the dealer, in order to fit him for sale, to make him look "*eyeable*" and "*plump*," or in a fair state for commanding exhibition; under these circumstances he is so clogged with superabundant flesh, or as the dealer's phraseology has it, so full of "*loose lumber*," that even common exercise will fatigue him, how much more so the excessive labour to which he is sometimes put by the purchaser, who, perhaps, is a coach proprietor, and is obliged in order to accommodate his passengers, to suffer his cattle to be driven in that state, at the unfeeling rate of ten or twelve miles an hour, both "*up hill and down dale*;" I say in that state, because it does not always happen that he remembers to prepare his newly bought horse for work by bleeding, physicking, &c. The *principle*, on which immoderate exertion may be said to act in the production of pneumonia, appears to be this, namely, the animal is forced to breathe oftener than when in a more calm state, by means of which more *caloric* is

evolved in the circulation, than can be got rid of by that cooling process, perspiration; the lungs are therefore surcharged with an exuberant increase of animal heat, a congestion of accumulated blood is lodged in their vessels, and the nervous energy becomes so far exhausted as to completely derange their important functions, and dispose them to pneumonia of the worst kind. I have generally found inflammation of those viscera much more fatal, under such circumstances, than when occasioned by mere plethora, or the other ordinary exciting causes that commonly produce it. The last cause to be included is *suppressed perspiration*; we shall not dwell largely on this point, suffice it to say, that the cutaneous discharge is suddenly stopped by an undue exposure either to cold air or wet weather, this drives the blood from the extremities to the centre, particularly the lungs, with which the skin has a striking sympathy, and brings on inflammation. It is not because cold *air* itself when immediately applied to those organs is injurious, no; for on this depends the general health, indeed, the life of the animal; but it is the translation of that excrementitious vapour, or sweat, that is thus thrown by this circumstance into their substance, and thereby chemically excites them to increased action. Without however reasoning on the *modus operandi* of suppressed perspiration as a cause of pneumonia, it is sufficient to say that it frequently will produce it, let it be occasioned by whatever circumstance it may.

QUES. *Having noticed the symptoms and causes of pneumonia, proceed to describe its terminations and the treatment proper for its removal?*

ANS. The *terminations* of this disease are the same in nature and character as those of external inflammation; the most desirable, indeed necessary termination is *resolution*, or the reinstatement of the lungs to their healthy standard. It may be known to have taken place by the return of warmth to the extremities, the tranquil state of the breathing, the full and usual beat of the pulse, the appearance of cheerfulness in the animal's countenance, the recurrence of the appetite, the lighter colour of the conjunctive membrane, and an ability to lay down with ease. These are the general symptoms of resolution in pneumonia, and ought to be minutely noticed before we give a decided prognosis as to the final recovery of our patient. Another termination is *gangrene*, or *mortification*, and may be known by the signs that have already been described under the head *symptoms*. In this case the lungs will be found after death almost black, (owing to the suffusion of venous blood in their parenchyma), and also very soft and frangible, being broken into pieces by the slightest pressure. *Effusion*, or water in the chest, is a very frequent and annoying termination to the practitioner, it is generally characterized by a remission of the symptoms, a yellow discharge from the nostrils,—a disinclination to move or lie down,—a rough staring coat; but still more so, by the peculiar state of the

pulse, which is a fluttering, irregular beat, much better felt than described. Some judge of its presence by what is called "*auscultation* and *percussion*," or the application of the ear to the region of the heart, or the left side of the chest, while another person is striking the opposite side, which causes a "*squashing*" sound, something like the vibration of a pendulum in a vessel of water. This criterion, however, must not be depended upon in our decisions, without the exhibition of the other characteristics. This result sometimes occurs in three or four days, at others, not until three or four weeks after the first attack, but is sure to prove fatal if ever so well treated, yea, even in spite of the recommended operation of *paracentesis*, or tapping, which has been tried, but never, I believe, with success. *Suppuration* also sometimes follows from pneumonia, and is equally as fatal as effusion, though not always so speedy in its results; it cannot be known with certainty till after death, but may be inferred from the offensiveness of the patient's breath, from the loss of flesh and strength, and from the character of the pulse; it sometimes occurs shortly after the first attack and chokes the animal, at other times it is more gradual, and the subject dies from consumption. I have seen cases in which the whole parenchyma of the lungs were saturated, so to speak with pus. Pneumonia often has its *chronic* results also, such as chronic cough, thick wind, roaring and broken wind, these are generally the consequence of a deposit,

either in the substance of the lungs, thereby obstructing the easy passage of the air through its cells, or else the large branches of the bronchia, and in some cases the wind-pipe itself.

The *treatment* necessary in this affection may now be briefly noticed, and here we may observe, that there is no disease in the horse in which the advantages of *copious* bleeding are so palpable as in this, nothing less than from four to eight quarts of blood should be abstracted, on its first appearance, that is, if the state of the animal, or the urgency of the symptoms require it. It should never be forgotten that in this and all other organic inflammations, the orifice should always be large, so as to allow the blood to flow more freely, it being the quickest mode of relieving the heart and arteries. If the patient faint before the above quantity is drawn off, pin the orifice up and commence with the other parts of the treatment. I once had a case in which the animal fainted before three quarts were taken. this led me to conclude that I should lose my patient; if I did not speedily excite extensive counter-irritation; I therefore immediately blistered the breast and sides with strong cantharides ointment, and the best effects followed in a few hours. This therefore, with other proofs of its advantages, has induced me to adopt blistering as the quickest method, next to bleeding, of removing the symptoms. In about six hours afterwards the pulse should be again examined, and the other characteristics minutely noticed; if the artery beat

indistinctly, and the breathing is still very quick, we must bleed again, having our finger on the vessel, watching the number and strength of the pulsations, if they rise and become fuller and stronger, we may have hopes that the balance of the circulation will return again. After blistering, give laxative clysters, and if the bowels be costive they may be gently opened by the following drench, without fear of superpurgation :—viz.

Epsom Salts, 6 ozs.

Castor Oil, 4 ozs.

Coarse Sugar, 3 ozs.

Dissolve the whole in a pint and a half of warm linseed tea, with the yolk of an egg in it. We would not however recommend this except the bowels are constipated, but rather the following, to be given two or three times a day :—viz.

Nitre, $\frac{1}{2}$ oz.

Digitalis, 1 drn.

Emetic Tartar, 2 drms.

Aromatic Confection to form 1 ball.

The digitalis will be found to have a marked effect upon the pulse, causing it to intermit considerably, in short, it is given with this intent. Some prescribe small doses of aloes, but this medicine has a strong tendency to produce active purgation, which should be studiously avoided, and thus quicken rather than lessen the force of the circulation; others advise the use of hellebore in order to excite nausea, lower the pulse

and produce diaphoresis, but this effect however desirable, cannot be accomplished by this article without very alarming symptoms, such as hanging down of the head, frothing at mouth, and temporary delirium; whereas the former or digitalis will cause no unpleasant indication, but rather produce the most salutary results. The advantages, however, of the latter medicine very much depends upon a proper attention to the patient's clothing, (that is in the winter season), he must be covered with a body cloth and hood, have his legs bandaged, and thus be kept warm; not that this should be assisted by the agency of hot or even warm air. *Hot* air is a kind of poison in this disease, and therefore the stable must be well supplied with pure, cool air, that being "*a direct sedative.*" In the course of thirty or forty hours, and often before this time, the symptoms will abate, and the appetite begin to return; in this case the digitalis may be omitted, and the following given once a day:—viz.

Nitre, 3 drms.

Chamomile, 2 drms.

Camphor, 1 drms.

Tartarized Antimony. 1 drms.

Gentian, 2 drms.

Honey to form 1 ball.

This should not be given if the least marks of fever remain, but rather the balls recommended under the head *fever*; as soon as all febrile symptoms have disappeared, it will be found

excellent, quickening the appetite, and producing the happiest effects. Throughout the whole of this disease the same attention should be paid to nursing, &c., as that which we prescribed when treating on *enteritis*. I shall now conclude this subject, and refer to the next topic of discussion.

QUES. *What are MALLANDERS and SALLENDERS?*

ANS. They are certain scurvy eruptions, on the back of the knee, and front of the hock. They may be removed by well washing them clean with soap and warm water, and afterwards applying the following ointment every day :—viz.

Calamine Powder, 2 drms.

Camphor Powdered, 2 drms.

Sublimate, 4 grs.

Mercurial Ointment, 2 oz.

This will effectually remove them, if applied a few times in the manner just directed.

QUES. *What remarks have you to offer concerning the nature, treatment, &c., of the disease called MANGE?*

ANS. Mange is a disease of the skin, and is known by the animal's constantly rubbing himself, and by the appearance of numerous patches or scabby eruptions about the head, neck, tail and other parts of the body. These if not removed degenerate into thick wrinkles, particularly about the neck and shoulder, indeed, they will spread themselves in every direction; in the advanced stages of this disorder it is exceedingly more difficult to cure, particularly if complicated with some other constitutional affection, which is

often the case. It is sometimes occasioned by filth, at least we have reason to think so, but its most common causes are poverty and contagion, especially the latter, for no disease, is perhaps, more contagious. The constitutional part of the treatment of this filthy and obstinate complaint must be regulated according to its inveteracy, the condition of the animal, and the causes that produced it. If the subject be plethoric, and has caught it by contagion, bleeding and a mild mercurial purge will be required. If on the other hand he be poor and emaciated, gentle alteratives in combination with cordial and stomachic medicines may be given, such as the following :—viz.

Barbadoes Aloes, 1 oz.
 Nitre, 2 ozs.
 Sulphur, 4 oz.
 Tartarized Antimony, 6 drms.
 Gentian, 1 oz. and a half.
 Powdered Colombo, 3 ozs.
 Ginger, 1 oz.,
 Oil of Aniseeds, 2 drms.
 Palm Oil to form 6 balls.

One to be given every day, unless purging follow, when they may be suspended; carrots should be thrown before the horse twice a day, and if in low condition, good living will do him no harm, unless beans also be given as food, which are highly improper. Respecting the *local* part of the treatment it may be remarked, that on this, materially, indeed, wholly depends the curative efficacy of our other remedies. The following

plan will answer every desideratum, namely, if mange occurs in the summer season, the animal may be first washed clean with proper proportions of warm water and pearlash, standing in the sun while it is done, after which he must be wiped nearly dry, and covered over with a cloth till the wet is entirely absorbed. This is done to remove the filth from the skin, and prepare it for a more speedy and effectual application of the dressing; it should not, however, be adopted except at this time of the year, but the scurf must be removed as much as can be by the curry-comb and brush, both of which after being used should be thrown away, for fear they should again produce the disease. As soon as the horse is prepared for inunction, apply the following:—viz.

Strong Mercurial Ointment, 4 ozs.

Oil of Turpentine, 6 ozs.

Hogs Lard, 1 lb.

Linseed Oil, 1 pint.

Oil of Tar, 6 ozs.

Flowers of Sulphur, 1 lb.

Mix the mercury and turpentine by trituration, then melt the other ingredients, except the sulphur, after which gradually add the whole together, and stir till cold and stiff; this should be well rubbed in on every part that needs its application, and the harness and other appointments of the horse put on him immediately after dressing, or else anointed with the mixture, in order to destroy the seeds of future contagion. This is a safer mode of prevention than merely

washing them, the stable should be freely washed with a solution of the chloride of lime, and every thing that is likely to communicate the disease must either be thrown away or cleaned with soap and water. These precautions are always necessary where this loathsome disease is existing, or even only suspected to exist. I ought to have remarked that mange *lotions* composed of corrosive sublimate, tobacco, aqua calcis, or lime water, &c., &c., have been recommended as a cleaner way of curing this disorder; although it is a neater and more clean method, yet it is nothing like so effectual as properly compounded proportions of mercury, sulphur, &c. During the dressings it will be well to guard against cold air, cold water, &c., because of the mercurial ingredient contained in the above mixture.

QUES. *What are MUSCLES, and of what use are they in the animal economy?*

ANS. Muscles are fleshy, fibrous bodies, formed for the purposes of motion. They are divided into voluntary, involuntary, and mixed. The *voluntary* muscles are under the immediate influence of the *will*, such as those of the extremities, (some of which are concerned in progression), and many others; whereas the *involuntary* are not thus subject to that controlling faculty of the mind, but are governed by widely different *stimuli*. In this class of muscles are comprehended the heart, arteries, and some of the abdominal viscera. The order called *mixed*, are such as have a two fold source of action, namely, the influence of

the *will* on the one hand, and the stimulus of necessity on the other; the muscles of respiration are of this kind, a fact ascertained by the power we have of holding the breath for a short time. It is not, however, my intention to enter into a description of the various muscles belonging to the animal frame, because that would be a task, not only intricate and tedious, but of no essential use to the veterinary student; let it suffice therefore to remark, that the numerous variety of muscles that compose the entire *muscular system*, are classed under various names, which have been given them either from their form, size, course, use, situation or composition. For instance, the *rhomboideus*, *triangularis*, and *quadratus*, get their names from their form or shape, whereas the *longissimus dorsi*, *pectoralis minor*, *serratus major*, gain their respective appellations from their size, the *rectus abdominis*, *transversalis abdominis*, and others are so called from their course, or the direction of their fibres, while the *extensor metacarpi radialis*, *flexor brachialis anticus*, and the *abductor longus humeri*, are so denominated because of their relative uses. There are also other muscles which derive their names from their situation and composition, but as a minute detail would take up more time and patience than would turn to a good purpose, I will conclude my anatomical descriptions and refer to their *physiology*. Here I would observe, that the most conspicuous property connected with their functions is their *contractility*, or power of contraction.

It is by the agency of this peculiar principle, that all the various movements of the living body are brought about, including the propulsion of intestinal matter, the ejection of urine, the contraction of the abdomen, the elevation and depression of the tail, the motions of progression, &c., &c. There is also *relaxation*, which can hardly be called a distinct action, but rather a suspension of the former, nevertheless, were it not for this principle of rest, so to speak, in the state of muscles, their motive energies would soon be exhausted, and they would become unable to effect the different movements of the body; the pleasurable feelings arising from muscular relaxation, are strikingly experienced, when we leave off any laborious exertion, such as that of running hard, the use of "*dumb bells*" as they are called, and other exercises. Another point connected with the physiology of muscles is, that they derive their power from the brain, or the nervous influence, a fact indubitably ascertained by the excision of any leading nerve, going to or supplying a muscle, the result of which is paralysis, or palsy, and a consequent destruction of all locomotive power in that part. If the phrenic nerve be divided, respiration is instantaneously stopped, and the animal dies immediately; several other instances might be adduced to prove the dependance of muscular motion upon the brain, but as especial reference thereto, would unnecessarily enlarge our descriptions, we will pass them over, and proceed to notice the next point; viz., the natural and

chemical stimuli by which voluntary and involuntary muscles are excited. The *natural* stimulus supposed to actuate the heart and arteries is the blood, that of the stomach is the food, that of the bladder is the urine, and so forth ; but there are also *chemical* stimuli. One chemical stimulus is aloes, which will considerably quicken the peristaltic motion of the intestines ; another is white hellebore, whose action is principally confined to the stomach. In short, there are many other sources of stimulation by which muscular substances may be put into increased excitement, the distinct enumeration of which would be extremely tedious, and of no real utility to the practical inquirer. Having therefore given a brief description of the anatomy and physiology of the muscles, I will conclude by observing that the *principle* of muscular function, as productive of the various phenomena of motive influence, is confessedly a mystery too profound and inexplicable for the most enlarged mind fully to understand ; all that we know is, that certain motions are effected by the agency of muscles, through their communication with the brain, as well as by their supply of fresh power and energy from the oxygenated blood, but how this communication with the brain, and this supply of power from the circulating fluid, is able to impart such astonishing energy to them, yet remains like many other important mysteries of nature, infinitely beyond the narrow precincts of mere human comprehension.

QUES. , *What are NERVES?*

ANS. They are white fibrous cords originating from the brain and spinal marrow; they are the agents of sensation and consciousness, and are divided into two sorts *cerebral* and *spinal*, or *sentient* and *vital*, the former is the most usual mode of distinction. The *sentient* give sensation and powers of locomotion, and are distributed among the external parts of the body, whereas the *vital* supply the internal organs with life, and an energy derived exclusively from themselves. To describe the various situations and names of all the numerous nerves of the animal system, cannot be expected of me, whose intention is to be brief, let me therefore refer you to some voluminous treatise under the head neurology, for a more copious illustration of this subject.

QUES. *What is NITRE?*

ANS. It is a very valuable article, and is the basis of all our fever medicines. This preparation in doses of from four to six or eight drachms in combination with tartar emetic one or two drachms, is extremely useful in all febrile and inflammatory complaints; it is sometimes used externally in cases of strains, combined with vinegar, &c., and is an excellent repellent.

QUES. *What is the OMENTUM?*

ANS. This membrane is commonly termed the "*cawl*," and covers the external surface of the stomach, and also part of the intestines, but it is not so extensively expanded in the horse as it is in some other animals; in the human subject it is

divided into different portions, to which have been given distinct names, according to their size or situation. The technicalities commonly used to express these divisions are the following:—*omentum majus*, or great omentum, *omentum minus*, or little omentum, and *omentum verum*, so called, probably, from its being produced from the large bowel *colon*. These distinctions, however, are not needed in describing the omentum of the horse, suffice it therefore to say, that it is covered with fat, and is generally considered to lubricate the peritoneal surfaces of the stomach, bowels, &c. By Mr. Gibson, a writer of considerable abilities, and deserved popularity in his day, it was also thought to “*warm the guts*,” as well as keep them “*moist*,” an opinion, which although so elegantly expressed, does not appear to be so correct and probable as other theories broached by authors of more modern date.

QUES. *Of what service is OPIUM in veterinary practice?*

Ans. It is almost unequalled in extent of usefulness, and is given in certain diseases with more decided efficacy, than any other article of the *Materia Medica*. It is the best possible remedy in locked jaw, either in the form of a clyster, or given as a drench; in spasmodic cholic it is very serviceable, if given in combination with æther and opodeldoc, and even in inflammatory cholic it is far from being inadmissible if administered in small quantities, and with the expressed oils; in diarrhœa it is a *sine quâ*

non, or absolutely indispensable; in cases of strangury, from the effect of strong blisters, it is excellent when given in conjunction with demulcents, such as linseed tea, &c. In short, it is used in almost an incalculable variety of complaints, and may be safely recommended upon the highest authority.

QUES. *What is the structure, &c., of the organ called PANCREAS?*

ANS. It is a glandular substance, and is commonly denominated by Physicians and others, the sweetbread. The term *pancreas*, however, is the phrase under which it is designated by anatomists. It is situated near the stomach, and has also attachment to the spine, liver, duodenum, and some other abdominal organs; it is of a white colour, and is composed of an assemblage of minute pipes, called secretory and excretory tubes, which tubes as they advance in their course become increasingly larger, till they form one leading channel named *pancreatic duct*. This soon afterwards enters the duodenum, or first intestine. The gland itself is supplied with blood by the branches of the pancreatic artery, a vessel proceeding from the posterior aorta, and when the above mentioned fluid has been sufficiently expended upon the pancreas for the purposes of secretion, &c., it is returned by the pancreatic veins, whose course it would be tedious and fruitless for me to describe. This viscus is furnished with feeling, nutrition, and secretory power by the minute ramifications of the *splenic plexus*,

which is a delicate web, formed from the extensive communications of the great *sympathetic*, a considerable number also of absorbent vessels, may be seen running in connexion with the venous branches, they cannot be discovered by the naked eye, but may be easily seen with the help of the microscope. The particular uses of this gland are not yet satisfactorily known by anatomists of the present day, but from its situation and supply of blood from certain important and vital sources, and its immediate connexion with the stomach and other digestive organs, we have reason to infer that it must materially assist in the process of digestion; it is probable from its magnitude, that it secretes a considerable quantity of pancreatic juice, which is a fluid that very much resembles the saliva, but intended for the more perfect dilution of the chyle.

QUES. *What are the PAROTID GLANDS?*

ANS. They are two large secreting substances, situated behind the ears; their office is to assist in the secretion of a limpid fluid termed *saliva*, or *spittle*, which is designed to co-operate in preparing the masticated food for digestion. They are called *conglomerate*, because they are composed in their structure of distinct lobes, which are connected to each other by cellular membrane; in each parotid there are an incalculable number of beautifully distributed tubes, called its *excretory ducts*, which enlarge as they pass on in their devious course, until they form one chief pipe termed *parotid duct*. This latter canal accom-

panies the submaxillary artery and vein, and terminates near the second grinder. These glands only form a part of the salivary apparatus, there are others of less magnitude engaged in the same process, but differing in name on account of their situations; they are divided into *submaxillary* and *sublingual*, the former of these are situated externally under the jaw, and are enlarged in strangles and catarrh, the latter are immediately under the tongue, and when inflamed constitute the disease technically denominated *cynanche tonsillaris*. All these substances, however, including the parotid as well as the others, concur in softening and preparing the masticated bolus for safe descension into the stomach.

QUES. *Describe the nature, &c., of the cutaneous discharge, or what is commonly termed PERSPIRATION?*

ANS. I do not intend to treat at large upon this subject, nor to describe its particular or component parts as discovered by chemical analysis, and so forth. This would be far from my professed design from the beginning, nor would it, I conceive, answer any useful end if I did; I would therefore simply observe by the way, that by the term *perspiration* is meant a certain vapour or fluid proceeding from the skin, and vulgarly denominated "*sweat*." It is divided into sensible and insensible perspiration; it is named *sensible* when profuse, or such as is seen after severe exercise, or during acute pain; and *insensible* when not perceptible to the sight, but flies off in the

air by evaporation. It is exhaled by the extreme arteries of the cutis, or the perspirable vessels, and is influenced as to its quantities from a variety of circumstances. I would here remark, that there is also another secretion formed by minute bodies, named subcutaneous, the office of which is to impart and maintain a sufficient degree of smoothness and pliancy in the skin. The perspirative fluid is made to serve two very important purposes in the animal economy, one of which is, to act as an *emunctory*, by which expression I mean, that certain properties are eliminated from the blood by it, whose stay in the system would, probably, be productive of disease, if not even deleterious. Its other office is to pass off from the system a superabundance of animal heat occasioned by an increased decomposition of oxygen in the lungs, or from other causes; this is probably effected by the superfluous carbon that is constantly emitted, more or less, from the cutaneous surface. Indeed, I know of no other medium but this cooling apparatus of nature, whereby an exuberance of caloric could be safely and effectually discharged. The perspiratory process therefore is wisely provided by the divine architect, in order to carry off an excess of that principle, (I mean animal heat,) which however necessary it may be to a certain extent in the living economy would, nevertheless, when superabundant, were it not for such a provision, seriously impair if not wholly destroy animation.

QUES. *What is POLL EVIL?*

ANS. An obstinate ulcer proceeding from blows, &c., upon the poll, or just behind the head. It must be treated in the same manner as the fistulous ulcer, which we have already noticed.

QUES. *What do you mean by the term PULSE, and how are its several variations classified?*

ANS. The pulse is that peculiar motion of the blood, occasioned by the contraction and dilatation of the heart and arteries. Perhaps there is no knowledge so truly a "*sine qua non*," with the veterinary surgeon, or in plainer words, more indispensably necessary for him to possess than that of the pulse; for without it he can only be considered a mere dabbler in his profession, having no safe criterion to direct him in his treatment of almost all the diseases of the animal system. To prevent this result therefore, it is requisite that he should first acquaint himself with the beat of the natural or healthy pulse, after which by frequent comparison thereof with the various pulsations of the artery in disease, he will perceive the difference, and be prepared to draw his inferences accordingly. In describing the pulse at this time, it will only be necessary just to give a brief outline of its ordinary variation, and leave its occasional peculiarities to the observations and experience of the practical enquirer himself. We will therefore first briefly notice the *quick* pulse; this is not always indicative of actual disease, it may arise from nervous

irritability, excited by alarm, &c., or from general debility; but here we would notice it in its distinct character, or as forming one of the characteristics of inflammatory action. In this case its quickness is combined with *fullness* and strength, I have frequently witnessed ~~these~~ were cases of external inflammation, such ~~as~~ that arising from a wound in a joint, &c., but more especially during the suppurative process, or while matter was forming into an abscess, in short it is often found in other diseases to which no particular reference need be given. The pulse is sometimes *hard* and *vibratory*, as well as quick or accelerated, this is generally the case in *enteritis*, or inflamed bowels, and forms one of the principal signs by which we distinguish it from mere spasmodic cholera; it is called vibratory because it carries a sharp quivering sensation to the finger, something like that of a sudden jerk of a tight cord. What is termed the *slow* and *soft* pulse generally accompanies the first symptoms of *phrenitis*, or brain fever, but in its advanced stages it becomes much quicker and stronger. The *oppressed* pulse is peculiar to pneumonia, and to that state of the circulation produced by nervous and muscular exhaustion, and which we have already noticed on the subject *chill*; we do not mean by oppressed that *small* feeble pulse which is symptomatic of general debility, but an indistinctness occasioned by an excessive distension of the heart and arteries. Lastly, the *irregular* pulse may be briefly hinted at, I have often

observed this kind in hydrothorax, or water in the chest, and I always view it as giving an unwelcome fatality to the other symptoms; it is also present in mortification resulting from a desperate wound, &c., and may be considered as a fearful presage of the monster's near approach. I mean death. Respecting the *situations* where the pulse may be felt, or the stimuli by which it may be influenced, I need say but very little. It is enough to state that some have chosen the *temporal* artery, some the *metacarpal* artery, and a few behind the elbow, opposite to the heart to feel it, but I prefer the *submaxillary* artery, or that passing over the under jaw bone, and I do so because it so well favors the proper compression of the finger upon it during our examinations. As for the *stimuli* just noticed we need only say that *alarm* is a powerful stimulus to it, so also is pain; hot and cold air likewise have a great effect upon the circulation, the former excites it, the latter abates its force; the last fact is strikingly evinced by the high-bred racer just after his extraordinary exertions upon the turf. give him in that state gentle exercise with cool air, and his pulse will soon sink to its natural standard, on the contrary put him in a hot stable, and it is probable pneumonia may follow in a few hours after; what is this but a proof that hot and cold air will materially affect the circulation. There are also *chemical* stimuli such as the mineral, vegetable, and animal poisons, besides digitalis, hellebore, tartarized antimony, aloes, &c.; the

former quicken the action of the arteries, the latter, except in tremendous doses, evidently lower it, indeed they are given with this end. We cannot however notice the minutiae of this subject, I will therefore now conclude it and refer to the next topic of discussion.

QUES. *What are the best PURGATIVE MEDICINES for the horse?*

Ans. There have been several kinds used by different persons, such as oil of croton in small quantities, gamboge, calomel, the expressed oils, neutral salts, and other articles; but the most effectual purge for general purposes is barbadoes aloes in doses of from five to seven or eight drachms as a standard quantity, it is generally combined with ginger, and a few drops of some essential oil; prepared kali, or castile soap, is also an useful addition, inasmuch as they correct the griping qualities of the aloes. The mass should be made up with palm oil or lard, to assist its solution in the stomach. The following proportions will form a standard dose of physic:—
viz.

Barbadoes Aloes, 7 drms.

Ginger, 2 drms.

Castile Soap, 2 drms.

Oil of Aniseed, 20 drops.

Palm Oil to form 1 ball.

The animal's body should be prepared by mashes two or three days before the physic is given, and while it is in him chilled drink and warm mashes should be freely allowed, and he must be kept

from cold, having moderate exercise the second day to assist its operation. To notice the particular cases in which purges are necessary, would be uncalled for here, that being applicable only to our separate or distinct descriptions of each disease.

Ques. *What is a quittor?*

Ans. It is a fistulous ulcer of the coronet, consisting of various "*pipes*" that run in different directions; it is sometimes difficult to cure, at other times comparatively easy. The former circumstance is owing to the long time it has existed, the number and direction of the sinuses, and the malignant condition of the ulcer; I have had many cases of quittor and have generally succeeded. The plan I commonly pursue, is first to minutely examine the extent of the pipes by the probe, and if not deep or numerous, to inject into them a detergent mixture made of

Sublimate, 2 drms.

Muriatic Acid, 1 drm.

Chrystallized Verdigris, 1 oz.

Distilled Vinegar, 1 pint.

This is mixed and bottled for use; a few days injection of this compound will generally destroy their ulcerated action, and put them in the way to heal. If it however fail, I then adopt the "*coring system*," that is I introduce pills of sublimate, or lunar caustic, (the latter is best), into the pipes, and fill the mouth of each pipe with a small piece of tow dipped in nitric acid, to facilitate the after separation of the core; an

emollient poultice is afterwards applied and renewed till the sloughing process is completed, or the core has come out. I would here remark, that although I commend the coring plan, if conducted on proper principles, or when really necessary, still I highly reprobate the cruel and unskilful extent to which it is often carried by the ignorant and inexperienced. I have seen cases in which caustics have been so profusely used, as to completely burn away all the ligamentous and other articular connexions of the foot, and destroy the patient in a few days. When the core has thoroughly separated I dress the bottom of the quitor once or twice with the mixture for ulcers, and then with two parts of tincture of benzoin and one of Egyptiacum, which will generally soon heal the part. Should the sinuses continue after this treatment, I repeat as above directed till well, and if the animal is gross or "humoury" as some term it, I give an occasional laxative, with few intervening alteratives.

QUES. *What do you mean by the term RUPTURE?*

ANS. A rupture is a protrusion of the bowels through the rim of the body into the skin, caused by contusions, &c.; it varies in size, sometimes very large at others of comparatively little size. It is divided into two leading kinds reducible and irreducible. By *reducible* I mean such as can be put back again into the abdomen, by *irreducible* such as cannot be reduced without risking the life of the animal. The *treatment* of either of them should never be attempted by any person

but an experienced veterinary surgeon; he only being able to decide as to the propriety of reducing them by surgical means or not. It may however just be observed, that those which happen to the horse, rarely require more than the ordinary method of treating external inflammation. There will be some enlargement left, even when the ruptured part is well, but this is seldom or never of any consequence, it proving to the subject no inconvenience worth notice.

QUES. ' *What is a SANDCRACK?*

ANS. It is either a longitudinal or else an horizontal fissure of the hoof, consisting in a division of its fibres, and is generally found in the fore feet, though it is sometimes seen in the hind feet. It commonly proceeds from a brittle condition of the horn, caused by a natural dryness thereof in some, while in others it arises from working on hot sandy roads. In some cases it occurs, primarily speaking, from treads, &c. upon the coronet, which terminate in a loss of secreting energy in the vessels of that part. Let it however come from what cause it may, the treatment must be regulated by the depth of the crack, or the quantity of fungus in it; if the fissure is not deep, and it happen in the fore feet, thin the surrounding hoof and remove the under-runings, then gently sear the denuded surface with a hot firing iron, and draw a *transverse* line on the top of the crack, after which fill it up with a piece of the following composition:—viz.

Bees Wax, 6 ozs.

Pitch, 3 ozs.

Venice Turpentine, 1 oz. and a half.

Suet, 6 drms.

Melt and stir till cold, and keep for use. Always apply a bar shoe, unless it be in the *front* of the hoof; if, however, there be much pain, and the animal is very lame in consequence of much fungus in the crack, the foot must be poulticed for a few days, and the proud flesh pencilled with lunar caustic, and a pledgit of digestive ointment put over the crack to bring it to a healthy suppuration. With this also, in severe cases, bleeding and purging may be adopted. When the inflammation is removed the two transverse lines may be drawn as before directed, and the sore dressed with friar's balsam till healed; the animal must have perfect rest in a loose stable till new horn begins to form, after which the crack may be filled up with the above composition, and the horse turned to grass till it is quite grown down. If the sandcrack happen in the *front* of the hoof, adopt the same plan, but after the fungus is removed, buckle a leather strap round the foot, which will keep the divided edges in close proximity, and thereby prevent its re-appearance. This plan will generally cure the worst of sandcracks.

QUES. *Is SOAP a useful medicinal article?*

ANS. Yes, the castile soap is used to prevent and remove calculous concretions, and the common soft soap is sometimes applied as a stimulant,

in combination with due proportions of ammonia, camphorated spirit and olive oil, in which proportions it forms an excellent embrocation for dropsical swellings, indurated tumours, &c.

QUES. *What are SPAVINS?*

ANS. They are enlargements of the hock joint, and are of two distinct kinds, the bone spavin and the bog or blood spavin; the former consists in a *bony* excrescence on the inside of the hock, but the latter is a soft compressible tumour, sometimes situated in that part where the great thigh vein passes over, and is called *blood* spavin, at other times it fills the whole joint, when it is termed *bog* spavin. These last kind are thought by many to have *wind* in them, but this is a mistake, for they are certain cysts named *bursæ mucosæ*, or mucous bags, and contain a slippery fluid naturally secreted from their inner surfaces, but become enlarged by a redundancy of that fluid, which is occasioned by excessive exertion, such as leaping, &c. The bone spavin is generally formed from the same cause, but is sometimes produced by an uneven bearing of the foot, caused by one heel only being turned up in shoeing; this unnaturally stretches the ligaments of the joint, and disposes them to ossification. Whether it ever proceeds from a natural tendency in the animal to ossific depositions, or to form bony substances, I cannot determine, but am inclined to think it sometimes does. However, to the point, let us now notice the different modes of treatment employed to remove it; some perfo-

rate the bony enlargement with a kind of gimlet, and then introduce a caustic pill in the hole and cover it with a picce of sticking plaster till it sloughs, or brings out a core; this plan sometimes succeeds, but certainly with no great credit to them who are desperate enough to adopt it, for it most commonly either kills; or ends in ankylosis, or a stiff joint. Others saw off the excrescence with a surgical saw, but this is very little better than the former plan. The best and safest mode therefore is to fire and blister, a plan adopted by hundreds of practitioners with far more success than any other method beside. The following formula will be found a good blister for general use:—viz.

Yellow Wax, 10 ozs.
Mutton Suet, 10 ozs.
Best Olive, 10 ozs.
Mercurial Ointment, 2 ozs.
Powdered Cantharides, 8 ozs.
Oil of Origanum, 1

Melt the wax and suet first, then strain and add the oil, when getting cool add the mercurial ointment and essential oil, and afterwards the flies. Ringbones, bog spavins, and indeed all enlargements of that kind require the above treatment, and if the firing be done neatly it will hardly be discovered, while at the same time it will be attended with the best effects.

Ques. *How would you treat SPEEDY CUT?*

Ans. This commonly originates from a natural defect in the horse's "*action*," or manner of

of going, and cannot be totally prevented from occurring again. It may, however, be cured by applying a warm linseed poultice to the part, and evaporating lotions to the swelling; the following formula will be found an excellent compound of this kind for general use in external inflammation:—viz.

Sal Ammoniac, $\frac{1}{2}$ oz.
 Distilled Vinegar, 2 ozs.
 Spirits of Wine, 4 ozs.
 Spring Water, 8 ozs.

Local bleeding also will be required when there is much inflammation, and if there be any extravasation of fluid in the cellular membrane it must be evacuated by the use of the lancet, and then dressed with digestive ointment till it is nearly healed, after which friar's balsam may be applied till it is quite well.

QUES. *What is the spleen?*

ANS. The spleen being an organ whose real use or office is still in great obscurity, will occupy but a small share of our present descriptions. Suffice it to say, that it is a body of a spongy or rather cellular tissue, is situated in the abdomen, and has membranous connexions with several abdominal organs, such as the stomach, omentum, left kidneys and others. It commonly goes by the name of "*milt*," and is known by its triangular form, and is between a brown and blue in its colour; it is supplied with blood by the splenic artery, a vessel which proceeds from the posterior aorta, and is furnished with nervous

energy by the splenic plexus. It is also provided with absorbents and the blood sent to it by the arterial channel just mentioned, is returned by the splenic vein, and carried to the *vena portæ*. Although the use of this viscus is not yet clearly known, still it is frequently subject to disease; in some instances it has been ossified, and it is often subject to abscesses which "*break*," or pour their contents into the abdomen, when they cause almost immediate death. I once had a case of this kind, in which the animal only exhibited marks of diseased liver, nor had I the least idea of any disease in this organ, but on examining the patient after death, I found a large quantity of pus, covering and floating about those viscera that are in the immediate vicinity of the spleen, on more minute examination, I saw in the spleen itself a deep cyst, in which the matter had accumulated and burst.

QUES. *What observations have you to advance descriptive of the disease commonly termed MAD STAGGERS?*

ANS. The technical phrase by which this affection is distinguished is *phrenitis*, or inflammation of the brain. Before I describe its character as a frequent disease of the horse, I would just observe, that there is a complaint something similar to it in its primary symptoms denominated *stomach staggers*, with which it is apt to be confounded; and if not properly distinguished from it, may lead the practitioner into practical errors, some impropriety in his system of treatment.

This latter affection seems to take on a peculiar character widely different to the former, from which circumstance it has been termed by a late popular veterinary pathologist "*specific*" gastritis. Its more minute nature will be entered into when we come to treat distinctly upon it, under the head *stomach staggers*. Phrenitis or *mad staggers* is first indicated by a watery running of the eyes, and a deep stupor or heaviness about the head, these are succeeded by fearful paroxysms of violence and delirium; the animal plunges hither and thither,—beats himself against the wall, or any other obstacle in his way,—sometimes he rears up his fore legs in the air, and then throws himself down again with the most alarming insensibility,—there is a striking wild look in his countenance, and an evident unconsciousness of what he is doing. I once knew a horse that "*floored a three stall stable*" in one night, from the violence of his actions. As soon as the "*fits*" are over he lays in a state of perfect inaction for a few minutes, the first of outer membrane of the eye becomes firm, and his limbs are stretched out with convulsive stiffness as if he were dying. This, however, is only transient, for shortly afterwards he again resumes his former furiousness with as much or more impetuosity than ever; his bowels are very torpid, his breathing exceedingly disturbed, his nostrils much dilated, and the pulse very low except during the paroxysms, when it becomes much quickened. There is considerable fever, and his urinary secretion is

singularly small in quantity, but he is generally free from strangury. These are the most decisive symptoms of this disorder, we will therefore pass on to notice its causes and treatment. The *causes* are either metastasis, plethora, excessive exertion, or distention of the stomach, the latter most frequently produces it; we infer this from the gorged state in which that organ is generally found after death. The ordinary morbid phenomena exhibited "*post mortem*" are an inflamed state of the pia mater, or that delicate membrane which involves the external surfaces or convolutions of the brain, a vascular redness or turgescence of the minute vessels called *plexus choroides*, and sometimes an effusion of serous fluid in the ventricles. It may be safely said with regard to the *treatment* of this disease, that bleeding stands foremost, not less than six or eight quarts should be drawn off the first time, unless the animal faint before it is taken, next comes a strong mercurial purgative in solution, made of seven or eight drachms of aloes, with two drachms of calomel, &c., and two drachm doses of aloes followed up every four hours till it purges, besides frequent purging clysters; a blister plaster might be applied on the forehead, and a rowel inserted under the jaws, with setons, in the neck. Let him be in a large roomy place to knock about in without injury, and secure a body cloth on him to keep his skin warm, and also well bandage his legs; he should be watched the first twenty four hours lest he should hurt himself by his violence. After the

operation of the physic, if the paroxysms continue, give the following once or twice a day :—viz.

Tartar Emetic, 2 drms.
 Assafoetida, 2 drms.
 Camphor, 1 drm.
 Nitrous Ether, $\frac{1}{2}$ oz.
 Opium, 1 drm.
 Valerian Powder, 2 drms.
 Palm Oil to form 1 ball.

This medicine must not be given unless the animal be convulsive, but rather the balls ordered under the head *fever*, till the febrile symptoms have wholly disappeared. Much debility often follows from this disease, even when the appetite is restored, and the animal is recovering; one of the following balls every other day, will therefore be of great use :—viz.

Peruvian Bark, 2 ozs.
 Camphor. $\frac{1}{2}$ oz.
 Sweet Spirits of Nitre, 2 oza.
 Opium, 1 drm.
 Honey to form 4 balls.

In this affection great attention must be paid to the patient's diet, &c., that is, stimulating food should not be given too soon, nor must he be suddenly exposed to cold air. I should have observed in my previous observations, that bleeding from the *temporal* artery, (a vessel in the temples or near the outer corner of the eye), has been strongly recommended by some authors, I have only to say that I have tried it, but certainly not with equal benefit to venesection. The pow-

der of the croton nut also has been prescribed as quicker in its action than aloes, this however is doubtful with me, for I generally find that the latter, if given in solution, is sufficiently quick and active. I would now conclude this subject by observing that copious blood letting with brisk purgation and counter-irritation, are the grand essential means to be adopted, and will generally with good nursing management, perfectly recover the sick animal.

QUES. *What is the structure and economy of the STOMACH ?*

ANS. I do not intend to be minutely extensive in my definitions of the anatomy or physiology of this important organ, shall therefore merely give a brief outline of its form, situation, and composition in the horse. Its *form* may be much better understood by sight than it can be by description ; it is generally thought to resemble the common bag-pipe, and ~~varies~~ ^{differs} in its magnitude according to the size of the animal. Its office is to receive the food thrown into it by the œsophagus, and prepare it for further digestion in the bowels ; digestion, however, as a process, has already been treated upon, we shall therefore chiefly confine our remarks to its situation and composition. It is generally situated in the left hypochondriac region, as it is termed, but alters its position in part by distention ; it is connected by membranous attachments to the omentum, spleen, liver, and other abdominal viscera, and has its two extremities termed cardiac and pyloric, the

former is that part where the gullet terminates and forms its *recipient* orifice, while the latter is its *expellent* orifice, and immediately communicates with the first bowel. The *composition* of this viscus is divided into four coats, its peritoneal, muscular, villous, and cuticular. The *peritoneal* or outermost tunic, is formed from a continuation of the peritoneum, a membrane already noticed in some of our preceding subjects; the same membrane covers the intestines also, and adheres to the next or *muscular* coat. The fibres of this tunic being circular and longitudinal, are the cause of that peristaltic motion of the stomach, by which the food is propelled. The *villous* coat so called because like velvet, is longer than the muscular coat, by means of which it is able to pucker itself up, during its relaxation, into folds, termed its *rugæ*; it covers a larger portion of the stomach than the *cuticular*, which we have soon to notice, and in its *internal* or *sensible* portion, it is very vascular, and secretes a mucous exudation to defend its delicate surface from the otherwise *chemical* irritation of the food, &c.. and the folds just spoken of form a kind of valve, to prevent the retrogression of the duodenal contents into the stomach. Lastly, we will proceed to describe the *cuticular* coat. This is so termed from its being like the skin, and is only a continuation of the *insensible* lining of the *oesophagus*, or gullet; it is peculiar to the horse and a few other granivorous animals, and near the cardiac opening can throw itself into folds,

the same as the *tunica villosa* can. It terminates in a fringe like form, on which hundreds of bots are often found, and it covers the great extremity of the stomach. The *vessels* by which this organ is supplied with blood are the two *gastric* arteries, which receive the names of right and left from their mode of distribution, and are innumera- bly ramified over the whole extent of that viscus. *Absorbents* also are plentifully distributed, and run in company with the veins, the latter return their blood to the *vena portæ*. The *nerves* supplying this organ originate from the union of the *par vagum*, or the eighth pair, and the great *intercostal*. It is the extensive communications of these nerves in the stomach that gives it such strong and frequent sympathy with other parts, and it is to this circumstance that we impute the remarkable stupor that is indicated in "*comatose*," or sleepy staggers; in short, many more instances might be adduced that cannot be reasonably traced to any other origin than this principle of sympathetic connexion with the above organ. I cannot conclude the present subject, without briefly advert- ing to the horse's natural inability to regurgitate, that is to vomit; this is owing to the muscular structure of that part of the stomach which joins the end of the gullet, the fibres of which are so strong and coarse as to completely shut up the recipient orifice, and thereby prevent the throwing up of the stomach's contents. It is true there have been a few extraordinary cases of vomition in the horse, but these have never

occurred without some violent unnatural effort of the muscles in coughing, and a consequent convulsive displacement of the *velum pendulum palati*, or pendulous curtain of the palate, thereby causing an immediate expulsion of food through the nostrils and mouth. Thus you perceive that nature has so formed the stomach of the horse, as to serve for a kind of mechanical resistance to that action, and no doubt wisely so, in order that he might not become the slave of its inconvenience, while engaged in exertions which the cruelty, caprice and ignorance of man might put upon him. Nevertheless, I have frequently viewed this as a kind of disadvantage to the veterinary practitioner in many diseases of the horse, particularly in acute indigestion, in which immediate relief might probably be afforded could we excite the vomitory act.

QUES. *What are the diseases to which the horse's stomach is subject?*

ANS. The diseases of this organ are generally *sympathetic*, that is, they arise from its important connexion with other viscera, but the one on which we now intend to treat is a *primary* affection, and is denominated by a late veterinary author "*specific gastritis*," but in more common phraseology it is termed *stomach staggers*. Its precise proximate cause is not yet satisfactorily known; Professor Coleman and other veterinary surgeons consider it originates from *distention* of the stomach, caused by excessive eating, and the *stupor* which results from it they attribute to the

sympathetic communication of that organ with the brain. Some persons, however, view it differently to this, they conceive it arises as we have before remarked, from a peculiar kind of inflammation in the stomach that produces a morbid disposition to eat voraciously, from which circumstance the distended state then becomes the effect and not the cause. To be splitting straws however on a point, the knowledge of which would probably make no material difference in the treatment, is only wasting time and holding a controversy to no real service. We shall therefore discontinue our remarks on that head, and refer to the *symptoms* by which this affection is characterized. The general indications are, a remarkable drowsiness, without any acute pain or delirium, as in phrenitis,—a constant desire to rest his head on some prop, which arises, probably, from the diminished pressure of the blood upon the brain while in that position,—the animal runs headlong, or without any consciousness of surrounding objects,—there is almost always considerable costiveness, and a universal yellowness of the membranes, including those of the eye, mouth, &c.,—and a spasmodic twitching of the fleshy pannicle, with a slight disturbance of the breathing, the latter when the animal is near death becomes much excited. The leading signs which distinguish it from *mad* staggers are—a yellowness of the mucous membranes,—the non-existence of delirium,—the comparatively unaltered state of the pulse,—and the spasmodic

twitchings of the *panniculus carnosus*. The treatment of this disorder is unfortunately seldom effectual, the only means likely to cure are the following, namely, to bleed but not copiously, merely enough to prevent or remove phrenitic symptoms, large bleedings would depress the energies of the stomach, and thereby disable it from throwing off its accumulated contents; purges, however, must be given, but never without the addition of powerful stimulants, such as oil of peppermint, &c. The annexed formula will answer all that can be expected of medicine in this terrible disease:—viz.

Alces, 8 drms.

Calomel, 2 drms.

Myrrh, 2 drms.

Camphor, 2 drms.

Oil of Peppermint, 16 drops.

Dissolve this in a pint of hot water, and when warm give. Throw up the clyster ordered in enteritis, and repeat it in order to assist the operation of the drench, and apply a blister on the right and left sides about eight or nine inches behind each elbow; if it happen in the winter, clothe the patient and keep him warm, put him in a cool loose stable, give him mash and chilled water, and horn a little salt and water down him now and then to help the medicine. If the horse recover so as to have an appetite to eat, &c., the restorative balls ordered in phrenitis will be extremely serviceable.

QUES. *How would you treat STRAINS ?*

ANS. Strains, or more properly speaking *sprains* are generally treated as directed under the head external inflammation; the only difference between the two, is in the *local* applications that are employed. For sprains in the shoulder, hip, stifle, &c., *stimulating* embrocations are required in the first instance, whereas in ordinary cases of external inflammation evaporating lotions are substituted in their place. In every other respect the treatment is precisely the same.

QUES. *What is the nature of the disease called STRANGLES ?*

ANS. This disorder has received the name of strangles, probably, from the sense of suffocation which it sometimes produces; it is too well known to need any minute description, suffice it to observe, that it happens to young horses peculiarly, and differs from catarrh inasmuch as the submaxillary glands are *always* more enlarged and tender, than they are in that affection. The chief object of the practitioner, in this disorder, should be to promote *suppuration* as quick as possible, this may be accomplished by the application of a mild blister previous to the use of poultices, after which, those of an emollient kind made of linseed meal and warm water, may be applied with considerable advantage; the inflamed tumour, however, must be first anointed with the following ointment, before the poultices are put on:—viz.

Elder Ointment, 3 ozs.

Marshmallow Ointment, 3 ozs.

Bees Wax, 1 oz.

Camphorated Spirits, 2 ozs.

Carbonated Liquor of Ammonia, 1 oz.

First gradually melt the ointments, then add the other articles, and stir till cold ; this mixture will be found to allay the pain and tenderness of the swollen glands in a very striking degree, besides assisting the suppurative process : warm mashes and warm water should be given to the patient, and a cool but not cold stable be allowed him. If it occur in the winter, his body, neck, and extremities must be kept warm. This is all that is required when the disease is mild, but if several symptoms of strong laryngeal inflammation also appear, or great constitutional derangement ensue, accompanied with a quick pulse and disturbed breathing, the animal must then be bled, and fever medicines administered (that is, if it be practicable), but mixed in some mucilaginous fluid, and horned down him, or put in mashes, the latter is best if he will eat them ; should suffocation be likely to take place from the pressure of the swollen glands upon the larynx, which is seldom the case, the operation of bronchotomy must be resorted to. I would however remark by way of caution, that cases of this kind are often the effect of not moderating the inflammation at the beginning by bleeding, &c., a practice we should adopt when necessity dictates. As soon as the tumour is "ripe" it may be opened with a lancet,

and dressed daily with digestive ointment, or compound tincture of myrrh, taking care to have a large orifice so as to give a free exit to the matter, and thereby prevent the formation of sinuses. Before I conclude my description of this disease, I would just observe, that a mild dose of physic, after the abscesses have healed, is of excellent service, inasmuch as it improves the digestive functions, and produces certain good effects which are much better seen than described. Tonic medicines also may succeed the use of the purgative, if much debility remain in the system after the affection has apparently gone off. The following formula will be found to answer every needful purpose:—viz.

Peruvian Bark, $\frac{1}{2}$ oz.
 Gentian, 2 drms.
 Chamomile, $\frac{1}{2}$ oz.
 Sulphate of Copper, 1 drm.
 Oil of Aniseeds, 10 drops.
 Honey to form 1 ball.

One ball may be given every day for six days. This complaint, I believe, never happens more than once in the horse's life time, unless it be improperly treated or neglected, and it is to this circumstance, probably, may be ascribed the idea of its being a *depurative* process, or a disease by which some noxious quality or qualities are supposed to be expelled from the system.

QUES. *What is the use of SUBLIMATE?*

ANS. It is very beneficial in quittors, inserted in their pipes in the form of pills, but it is not

equal in efficacy, in this respect, to the nitrate of silver, or lunar caustic. It is also a good addition to any detergent mixture for foul ulcers, and to blister ointment, if required to be very strong; it is used internally by some practitioners in the disease called farcy, but I prefer the milder preparations of mercury to it in that disorder.

QUES. *Of what use is SULPHUR or brimstone in veterinary practice?*

ANS. It is a good alterative joined with the antimonials, and if used externally is decidedly the very best application for mange, and other cutaneous eruptions, that is, if it be combined with oil of tar, and other ingredients.

QUES. *What are TENDONS?*

ANS. They are white fibrous inelastic substances, and are the terminations of the muscles, some of the muscles, however, are without them. They vary in form and size, sometimes they are long and round, at other times they are broad and expanded, forming the muscles into "*aponeuroses*," that is thin expansions which cover the joints and other parts of the body. Most of them have their "*thecae*," as they are termed, or their sheaths, and the membrane lining their insides is extremely sensitive and vascular; in injuries or sprains of the back sinews this membrane becomes highly inflamed, and produces much pain, which can only be subdued by the treatment we have directed under the head *external inflammation*.

QUES. *What is the structure of the TESTES, or male organs of generation?*

ANS. The testes are two glandular substances in which the male semen is secreted, and they are situated in a bag technically denominated *scrotum*. This bag or envelopment has a line of division in its centre, which prevents the entire communication of one testicle with another, its continuation forms the sheath, or that part in which the *penis* is enclosed during its relaxation. The testicles do not visibly appear at the animal's birth, but lie in the abdomen near the kidneys for some months, after which they gradually descend into the bag; the inner surface of the scrotum is lined with a loose cellular substance, which forms a soft and pliable cushion for the testes to lie in; the testicles are also enveloped with other investing tunics, each of which we will briefly touch upon. The outermost coat is formed from a muscle termed *cremaster*, which originates from the two great abdominal muscles named *obliquus abdominis*, and *transversalis abdominis*, and is intended to draw them up in coition, &c. The *tunica vaginalis*, commonly called "*the stone case*," is another covering also, it is a protrusion of part of the peritoneum through the abdominal ring, and is united to the spermatic cord, but is only loosely connected with the body of the testicle, allowing sufficient room for a small quantity of fluid between it and them. The last investment to be noticed is the *tunica albuginea*, or its white

coat; this intimately adheres to its substance, and was thought by a late author to "*contribute to its warmth*," as well as defend it from injury. The *internal* structure of these organs is composed of the spermatic vessels, nerves, absorbents, seminific ducts, and intervening glandular tissue. The *spermatic vessels* include the ramifications of the spermatic artery and vein, those of the former by their minute distributions become the agents of the seminal secretion; while those of the latter are employed in returning the blood, that has been thus expended, to the emulgent vein and the great vena cava. The *nerves* that supply them arise, primarily speaking, from the great *intercostal*, but secondarily from the *spermatic plexi*. The *absorbents* spring from the lymphatics of the pelvis, and are spread over their surfaces with inimitable beauty. Lastly the *seminiferous tubes* may be described, these are scientifically termed *tubuli seminiferi*, they arise from the extremities of the secreting arteries, and carry the seminal fluid to the epididymis, which we will shortly notice, they increase in size as they proceed in their course till they form the *vas deferens*, or seed pipe; each testicle has its vas deferens which runs in company with the spermatic artery and vein, and it forms with the cremaster muscle, the cellular substance, and the two vessels just mentioned, the whole of the spermatic cord. The two seed pipes together, are called *vasa deferentia*, and considerably enlarge just before they terminate in the urethra. The *epididymis* is an appendage

to the testes. and consists in a congeries of small vessels, &c., from which part the great seed tube originates. The *vesiculæ seminales* may now be noticed, these words mean seminal bags, which were so named because they were thought to receive the semen or seed into them; they may be seen one on each side of the neck of the bladder, and are now supposed to secrete a fluid for the dilution of the semen, they are next in situation to the enlargement of the vasa deferentia, and are sometimes much distended. What are termed the *prostate* and *anti-prostate glands* are situated a little farther from the neck of the bladder than the former, but their minute structure need not be detailed, inasmuch as it may be ascertained much better by dissection, than it can possibly be set forth by the most lucid description.

QUES. *Having anatomically considered the TESTES, I will thank you to define their physiology?*

ANS. It will not be necessary to treat extensively upon the *physiology* of these organs, let it suffice therefore to observe, that they produce a secretion "*sui generis*," as it is termed, that is to say, peculiar to itself, and that this secretion is the only known medium by which procreation could be effected. This secretion or the "*seed*" is generally formed in proportion to the constitutional vigor of the animal, &c., that is to say, if he be poor and emaciated, or much out of condition, he will become proportionately incompetent to give efficacy to his coitive functions, but if

strong and healthy and full of "*stamina*," he will perform them with a fecundative energy, (if such a mode of expression may be allowed), of which he would be totally incapable were he in the former or debilitated state. *Pain* also has a considerable effect upon the production of semen, this fact may be proved in a variety of instances, for example, let a stallion with founder in his feet, writhing as it were under the acutely felt agonies of compressed sensible laminæ, be brought to a mare prepared for the horse by *æstrum*, and it is probable he will turn away from her with disgust, whereas if the ardency of his passion be not abated by such or similar suffering, he will then exhibit the intensity of his desire, and rush with irresistible impetuosity upon the longed for object of his infuriative lust. This assertion has been realized by the neurotomy of an uncut horse, thus affected with severe *chronic* founder, who though dormant in his lecherous appetite previous to the operation, became, when the nerves were excised, implacably eager for *coitus*; this change was occasioned by a diminution of that acute irritation in the feet which he before felt, but which was removed by the operation just alluded to.

The *age* of the animal also materially regulates the formation of this prolific fluid. It would be a waste of time and an insult to common sense, to say much in proof of this; the observations of almost every, or any person daily prove it, this remark may be made to bear both upon the

young and the old, the former are not prepared for effectual copulation, because of the immature developement of their organic and personal structure; though the libidinous desire may arise, still the seminal fluid cannot be elaborated by them, in sufficient quantities, to accomplish all the ends of procreation. The latter or *aged* uncastrated animals, being worn out and enfeebled either by previous hard work, or reduced by the growing infirmities of a decay in nature, necessarily lose to a certain extent the impetus of their lust, and sink beneath a gradual loss of physical energy; this is proved by the consequent *in*conception of those mares that are put to such horses, that is they seldom or never "*stand sure*," as some term it, but if taken to others of a proper age, the work of conception, pregnancy, &c., generally follow in natural succession. These remarks may appear irrelevant with some, but they have been made from a conviction that they were really needed, as illustrative of the topic now under consideration, besides, being borne out by frequent and repeated observations. The semen, we would here observe, has been submitted to chemical analysis, but as a description of its component parts, as discovered by such analyzation, would probably be thought dry and uninteresting to many, I will omit it, and pass on to notice that myriads of corpuscles, or minute atoms, have been seen in it by close investigation with the microscopic glass; they consist in numerous animalculæ, called *ver-*

miculi, from their worm-like motion or appearance. This leads us to remark how deeply mysterious, how inconceivably grand must the various economies of *universal* nature be, if only one detached instance of her beauties is made to strike the attention, excite the wonder, and totally absorb the varied conceptions of thousands of philosophical enquirers. Indeed, the admirable process of *secretion*, including the formation of saliva, bile, urine, &c., is in itself, unconnected with the other mysteries of organic function an *arcum* that neither the most curiously examinative theorists on the one hand, or the most indefatigable experimentalists on the other have been able fully to comprehend.

QUES. *What is the nature of what are termed THRUSHES?*

ANS. Thrushes consist in a discharge of offensive matter from the cleft of the frog, which if not checked will continue to spread itself, till it produces that troublesome disease called *canker*. They are generally caused either by contraction, or by filth and dirt, but sometimes they are occasioned by improper shoeing; the most common cause, however, is contraction, which produces them by the painful compression that it always occasions. I mean by this expression, that the horny or insensible heels fall in, and approximate each other so closely, that the sensible frog suffers considerably from the effects of severe pressure, and thereby becomes inflamed, from which circumstance arises the discharge from the cleft,

and the consequent diminution of the external frog. *Dirt* and *filth* seem to operate by their putrescent qualities, which act by eating away and destroying the horny texture, till they come in immediate contact with the sensible frog, when they irritate and produce inflammation; bad shoeing occasions it by causing contraction and other evil consequences. The treatment of thrushes must to a certain extent be *mechanical*, by which I mean that all the under-runings and "*rotten rags*" as they are sometimes quaintly called, must be removed by the drawing knife; the heels if very high require to be lowered, the quarters rasped thin, and the claw shoe applied, or if the horse can be spared from work Professor Coleman's patent *artificial* frog might be used with advantage, till the common shoe can be worn. The diseased frog must be dressed with the canker ointment noticed under that article, or with the following solution:—viz.

• Sulphate of Zinc, 1 oz.

Alum, 1 oz.

Spirits of Wine, 4 ozs.

Vinegar, 1 pint.

Water, 1 pint.

Dissolve and mix for use. In every dressing the cleft must be well filled with shreads of tow dipped in this mixture, and immediately afterwards the whole of the affected surface must be covered with warm tar and a little of armenian bole, and secured in the manner we directed when describing the disease named canker.

symptoms of the latter disorder appear, the treatment of course must be regulated as noticed under that head; the above plan, however, will generally be sufficient if repeated a few times, but nothing can be of permanent advantage without proper *mechanical* means be also adopted, such as good sholing, &c., to prevent its recurrence. I would just observe before I finish this subject. that thrushes may be easily cured, or at least checked, but their return cannot always be prevented, because the subject of them is often so naturally inclined to narrow-heels, that the most judicious counteraction cannot effectually expand them, the horse therefore under such circumstances will always be more or less subject to them.

QUES. *What are the medicinal qualities of TURPENTINE?*

ANS. It is an excellent medicine whether internally or externally used; it may be given internally as a diuretic, anti-spasmodic, and stomachic, that is in well regulated doses; externally considered, it is a good addition to blisters, embrocations, digestives, &c. Indeed, it stands eminently useful in a variety of cases.

QUES. *What is an ULCER?*

ANS. It may be termed, in the language of a late veterinary author "*a solution of continuity*," and differs from the state of the common sore or wound in no other manner, than that it arises from some peculiarly morbid action of the vessels of the part, it is generally speaking the result of a wound, or some other accidental cause,

though in some cases it is constitutional in its origin. Ulcers are divided by medical nosologists into *fistulous*, *sinous*, *fungous*, *putrid* or *gangrenous*, *carious*, and other distinct classes, far too extensive and complicated, in my opinion, to be of any real service in veterinary practice, such a mode of distinction in the classification of ulcers may be necessary in human surgery, but cannot be found to bear so appropriately upon those of the horse. The two principal kinds of ulcers to which the latter animal is subject, may be distinguished by the terms *simple* and *compound*. The former are confined to the integuments, whereas in the latter order, the muscles, ligaments, &c., become affected, and are often exceedingly difficult to cure. The *farcy* ulcer, although more malignant in its nature than the ordinary simple ulcer, yet in a surgical point of view it may be brought under the same designation, seeing it is the same in its situation, if not in the action of its vessels; the proper way to treat this class of ulcers is to lay them open by the use of a pen-knife or bistoury, and then to change the morbid discharge by the application of caustics; the following will be found to answer this purpose better than the uncompound caustic—viz.

Corrosive Sublimate, 1 drm.

Mariatic Acid, 2 drms.

Friar's Balsam 6 drms.

Well mixed and bottled for use. After two or three, and sometimes the first dressing, the sore will generally present a more healthy appearance.

if so, the next thing required is to apply some very gentle astringent, such as a weak solution of sulphate of zinc, or tincture of myrrh, without dilution, the latter will generally promote the healing process without the help of any astringent ; this is all that is required in *simple* ulcers and is almost always successful. In *compound* ulcers, the chief desideratum is a depending orifice, or a drain for the matter to run off well, to effect which the sinuses must be opened, and the same dressing applied as in the former kind ; should however the ulceration be very inveterate, the scalding mixture as directed under the head fistula must be used, and repeated if found necessary. Before I conclude my remarks on this subject, I cannot help observing, that the treatment must be entirely regulated according to circumstances, if it arise from a wound with a fistulous lining, and the knife, from its situation, cannot be conveniently used, it is proper to pencil its orifice or "*mouth*" as it is commonly called, with caustic, and thus to cause a slight separation, after which it will generally heal. If there be a long straight pipe in the body of the muscles, and not downwards, or under the skin, a sublimed or some other caustic pill (but not arsenic) may be introduced with a probe, in order to "*fetch out a core*," after which it must be dressed with volatile liniment, or the mixture we shall hereafter recommend for that division of the article on wounds, which we shall call the "*simple incised*" wound. Indeed there is the same variety in the treatment of

ulcers as in *external* inflammation, and therefore no description can be sufficiently universal to include all cases.

QUES. *What is the URETHRA?*

ANS. The urethra is that tube or canal, through which the urine and semen are expelled, it commences at the neck of the bladder, where its lateral portions are furnished with the prostate and anti-prostate glands. It continues its course till it terminates at the end of the penis, and on its inner surface are small excretory orifices called its *lacunæ*, which pour out a fluid intended for its lubrication, and to prevent the acrimonious action of the urine while passing through it; it is considerably wider at its commencement, than its termination, and this change in its size or calibre takes place after it has passed the *os pubis*, or share bone, and so goes on till it gets to the end. Its termination is surrounded with a prominence called the *glans penis*; which is extremely sensible, and is supposed to afford the most exquisite sensations during coition. Its passage over the share bone is so suddenly curved and narrow in the horse; as not to admit of the safe introduction of any instrument through it into the neck of the bladder, in cases of urinary retention; an opening therefore must be made in the perineum, in the manner we have directed when describing the diseases of that organ, if this is not done, the water cannot be drawn off, but the bladder must burst from excessive distention. The *female* urethra will be noticed when we come to treat

upon the *external* connexions of the *uterus*.

QUES. *Is not the urinary fluid often BLOODY from disease?*

ANS. Yes, and it commonly goes under the name of "bloody urine." It is sometimes present in *inflammation* of the kidneys, but it is then accompanied with other symptoms also, which are more minutely noticed under that head; it is however generally caused by carrying heavy burdens &c., whereby some of the finer vessels of those organs are torn or ruptured, and consequently, the extravasated blood escapes with the urine. Sometimes the urine becomes bloody, from a chronic *ulceration* of the kidneys, but in those cases, it is thick and turbid, foetid and offensive, and the disease is characterized by great emaciation, much stiffness in the hind quarters, with several pustular eruptions on the outside of the thigh and other parts of the body, besides other indications of serious or ~~grave~~ affection. In the present disorder there is, generally speaking, but a very slight degree of indisposition, and therefore quite different to nephritis. The *treatment* of it consists in bleeding, which must be regulated by the condition &c. of the patient; after this, give a dose of physick in solution, and freely embrocate the loins with spirits of hartshorn and olive oil. If the urine remains bloody, three or four days after these means have been tried, and no fever is present, give the following ball every day till well.

Alum, $\frac{1}{2}$ oz.

Opium, $\frac{1}{2}$ drms.

Peruvian Bark, 6 drms.

2 M

Gum Arabic Powder, $\frac{1}{2}$ oz.

Palma Oil to form one Ball.

If it proves very obstinate, a strengthening charge might also be applied over the loins with considerable advantage, but the animal must be turned out to grass, and have entire rest until quite recovered.

QUES. *Give me an anatomical description of the Uterus and its connexions?*

ANS. By the word *uterus*, we are to understand, what is generally termed the womb, or that hollow bag in which the Fœtus grows. This organ forms the chief part of the “*generative apparatus*” of the female subject, and is so constructed, as to constitute the only medium of procreation in that sex; it is hardly possible, for a minute and accurate knowledge, of the precise structure of this important organ to be obtained, by merely reading about it, it is necessary in addition to this, to see the viscus itself in its natural state, to attentively examine its various component parts, to notice their connexions with each other, their origins and terminations, their internal and external conformations &c. &c. Indeed this method ought to be adopted in reference to other parts of the animal frame as well as this. I for one can strongly recommend this plan from my own experience, for I have found, I could infix a greater knowledge of anatomy, on the tablet of my memory in one hour by actual inspection, than I could otherwise do by the most studious and laborious lucubration. Without however wasting time, as some may think it, by making

merely extraneous observations; I will proceed at once briefly to define the structure of the uterus, by dividing it into two grand divisions, namely; its internal and external connexions. The *internal* connexions of this organ compose or include its neck, body, cornua, fallopian tubes, and ovaria. The *neck*, denominated by anatomist "*Cervix Uteri*," commences at the termination of the vagina, which we have shortly to notice, and has in the middle of it, an opening which leads to the body of the womb and is called the *os uteri* or "*mouth*" of the uterus. This part is very thick and hard, and has its longitudinal folds, which allow of its enlargement during parturition, and a mucous fluid is also secreted to lubricate its inner surface. The *body* of the womb is much longer and wider than its neck, and its folds are considerably larger, and apparently more numerous than those of the latter. They form so many longitudinal eminences around the whole of its internal surface, but disappear in the advanced stages of pregnancy, when the womb becomes greatly enlarged and expanded. A copious quantity of mucous fluid is also secreted, in order to lubricate its membranous surface, and thereby defend it from abrasion &c. The termination of this part, forms the *fundus* or bottom of the womb, and branches off into two *cornua* or horns, which we shall now describe. These divisions constitute the principal difference between the human uterus and that of brutes, the former of which is without them. They are about the

same length as the body of the womb, and in the mare, maintain an equal or nearly equal magnitude, from their commencement to their terminations, but in the cow they gradually contract in their size until they reach their extremities, where they are remarkably small. Their inner lining, in the animal just mentioned, is covered with several small and round substances apparently glandular, which considerably enlarge in the latter periods of gestation, and are then very vascular, being interspersed nearly all over the surface of the womb, appearing like pieces of sponge. They are often seen in the living subject, in cases of *procidencia uteri*, or the falling down of the “*bed*” as it is sometimes termed. These little prominences, are supposed to give nutrition to the young animal, while in its embryo state, by conveying to it through the medium of the foetal circulation, a sort of chylous fluid, which they abundantly secrete as they lie on the inner surface of the womb. Let us now notice the *Fallopian tubes*. These tubes arise from the extremities of the cornua, and are called *Fallopian* from the name of their discoverer, which was Fallopius. There is one tube to each *cornu* or horn, and both the tubes commence with so small a calibre, as hardly to allow of a hair to pass through their orifices; they proceed in their course, in a singularly twisted manner, or winding direction, turning in and out, and continuing very narrow in their size, until they get near the *ovaria*, when they suddenly expand like the end of a trumpet. They form

a fringe like edge at each of their terminations, to which has been given the term "*fimbria*," one part of this fringe has actual attachment to the ovarium, the other portion of it lies loose in the abdomen suspended by intervening membrane. These tubes it is thought, embrace the ovaria in coition and receive the ovum or vesicle just burst from them, and convey it by their peristaltic motion, into the womb, there to remain, vivify, and form a new creature. The *ovaria* are two little bodies vulgarly called "*the stones*" and are nearly the size of a hen's egg, they are not however like the latter in their figure or external shape, but as far as I have been able to notice them, they rather resemble the common Windsor bean in their form, only not quite so flat and thin; they are united to the fimbriated extremities of the *oviducts* or fallopian tubes, but by reason of their membranous attachments to the sides of the womb and its cornua, they lie loose floating in the cavity of the abdomen. These substances are larger in the mare than in the cow, and also somewhat different both in size and situation: in the latter, they are scarcely bigger than a nutmeg, and are closely situated one on each side of the womb, near the commencement of the cornua, whereas in the former, they have no *actual* contact either with the horns or the body of the uterus, but are only loosely connected to them by a delicate and expanded membrane; in other respects, these organs are generally speaking, similar to each other in both of the

subjects just spoken of. They contain within their interior a variety of little distinct vesicles or bladders filled with a limpid fluid; these vesicles are denominated *ova* or eggs, and are considered by most physiologists, to be the *nucleus* of the future animal, or the part from which it is first formed: little dark coloured spots also, termed *corpora lutea*, may be clearly seen in the *ovaria*: after impregnation, one of which in the cow, when she has had a calf, becomes much enlarged, forming a little protuberance at the end of the ovarium, not unlike a nipple in its form; these spots in the animal just mentioned, are of a yellow colour, I have seen five or six of them in one ovarium, and have been led from this to think that they often exist in the *ovaria*, even before the animal is impregnate. Having briefly described what I have been pleased to term the *internal* connexions of the uterus; I will now proceed to define those parts that are more *external*. The *vagina* therefore may be first noticed. This part in a certain sense may be considered, as one of its *external* connexions, because it is not absolutely a part of it, but only attached to its neck at its termination; it is that long, wide, and membranous passage, which leads from the shape to the neck of the womb, it has folds similar to, but thinner than those of the latter, and is thereby capable of considerable distention either in *coitus* or *parturition*. A slippery discharge is also formed on its inner surface, and is intended for certain purposes, that need not be distinctly particularized.

Underneath this great canal is situated the urinary pipe of the bladder, termed the *urethra*; this pipe may be clearly seen by just opening the lips of the shape a little, and in cases of urinary retention, a catheter may be easily introduced to draw off the water, it is very short and straight when compared with that of the horse, and its inner membrane is lined with a mucous fluid, to defend it from the acrimony of the urine. What is termed the *clitoris* is another external connexion of the uterus, it is a small, round, prominent and spongy substance, situated a little within the lower part of the shape; it has no perforation or hole in its centre, like that of the *glans penis* in the horse but is in many other respects very much like it; it has a kind of prepuce attached to its extremity, and may be seen protruding itself beyond the lips, just after the act of staling; this is done to force out the last drops of urine, and thereby keep it from irritating the vagina. Lastly the *vulva* may be briefly hinted at. This is that central opening of the shape which leads to the womb, it is bounded at its sides by the two *labia pudendi* or lips of the shape, superiorly by the *perineum* near the anus, and inferiorly by the lower union of the pudendal lips. Its upper portion is called its superior commissure, its lower portion its inferior commissure, and its inner membrane is lubricated with a mucous exudation, intended to protect it from injury during parturition or the coital act. These are the *external* connexions of the uterus

or rather, the outward organs of generation and may be distinctly seen by dissection.

QUES. *What observations have you to make respecting the PHYSIOLOGY of the uterus.*

ANS. To enter into a minute detail of the various hypotheses that have been suggested, and the opinions that have been formed, in connexion with this intricate and mysterious section of physiology, would be to depart from our original determination, to be brief; indeed, it does not appear to me, that an intimate acquaintance therewith, can be considered as affording any genuine or intrinsic advantage to the veterinary student. Let it then suffice, though we may omit a description of the various theories advanced, illustrative of the mechanism &c. of generation, such as the particular part or parts into which the seminal fluid is taken;—the pre-existence of germs in the ovaria of the female;—the supposed mixture of the male and female semen, deposited in the uterus, as forming the basis of the foetus, &c. &c. such a description might please, or captivate the attention of the curious, or the fanciful, but it could not be made to serve any useful purpose to the practical inquirer. I shall therefore, very briefly notice the allowed and most probable use of the uterus, as engaged in the elaborate work of procreation. Its chief use is to serve as a receptacle for the male semen. If this important organ did not exist, it does not appear clear how the sperm could be received, and afterwards be made to generate, without some consequent.

serious interruption to the other organic functions. In what manner the seed operates so as to produce the rudiments of a new creature, is a problem too difficult for me to solve; indeed it has been so, even to those who have conducted experiments on a very extensive scale in order to confirm their opinions concerning it. I would only remark that it is not improbable, that *sympathy*, or a mutual action, between the female *ova* and the male sperm, do both unitedly concur in the production of the fœtus. The plausibleness of such an opinion, seems to be demonstrated by the fact that the ova, cannot be prolific without the influence of the male semen, nor could the latter have any procreative effect, without the existence of the former, which fact is realized, as the result of that common operation called "*spraying*." I shall now close my remarks on this much disputed subject, by again observing that there is no necessity to relate the numerous speculations of great and superior authors, in reference to it, nor is it needful to enumerate the various experiments that have been made to support or illustrate their favourite theories. All that is known to a certainty is, that the uterus, or its constituent parts, mutually co-operate in fecundation, or the production of a new creature, by receiving the male semen, the procreative action of which is generally certain, though truly inexplicable.

QUES. *What sort of vessels are veins?*

ANS. To give a precise or lengthened descrip-

tion of the origin, course, distinct situations, &c. of all the veins, that compose the venous system of the horse, or that convey the blood, to that grand reservoir the heart; is the work of a minute anatomist, and not to be expected of one, whose observations are necessarily limited, within the narrowest boundaries; indeed to do this would be to form a treatise, whose contents ought to be exclusively anatomical, and have no reference whatever to other subjects. I shall therefore only give a brief outline of their composition and functions, with a few remarks on their number, origin, &c. The *composition* of these vessels differs materially from that of the arteries, the former order are very thin, and membranous in their texture, whereas the latter are thick and stout, and capable of retaining their circular form when empty; this is not the case with the veins, nor has their external coat that elasticity of action, or power to contract, which is so peculiar to the arteries. The *functions* of these circulating channels, also differ from those that are arterial, inasmuch as they do not carry the blood to the various parts of the body, but return it from them, and again convey it to the heart, they are also different in their function, because they have no share in the work of secretion, and the formation of new parts. The *vena portæ*, however is an exception to this general rule, the *hepatic portions* of which minutely ramify over the internal structure of the liver, and produce that well known secretion called bile. The arteries have to form

urine, semen, saliva, and several other products, and that is affected by a certain chemical process put into operation, by the Divine chemist, in a manner too mysterious to be understood by the most enlarged human mind. The great office of the veins therefore, is to return the blood which has been expended in the system, for the purposes of secretion and reparation, to its proper and original source. The *number* of these vessels also differs from the arteries (that is in some parts of the body,) proofs of which are too well known, to need specific reference ; the vascular structure of the foot for one, is a striking instance, of this fact ; in which part they are incalculably more numerous, than its arterial channels. On the exterior surface of the lateral cartilages, they are very numerously spread, and form a *plexus* or network of incomparable beauty. Out of all the anatomical preparations I have ever yet witnessed, I have never seen one to equal the foot, that is, if it be properly prepared, and its vessels neatly filled with wax injections. The two leading distinct orders of veins are the *superficial* and the *deep-seated* ; of the former order are the subcutaneous veins, or those under the skin and may be clearly seen on the inside of the thigh and other external parts of the body, more especially so, when the animal is heated by severe exercise. The latter order spring from the minute extremities of the arteries, and become increasingly larger as they proceed onward in their course to the heart. Some of these are imbedded in the external mus-

cles, such as those of the limbs &c. and often run in the same direction as their fellow arteries, as for instance, the *popliteal vein*, *metacarpal vein*, and others. The *origin* of these vessels in one sense, is from the terminations of the arteries, but if viewed as originating from the heart, we should then say that they all proceed, primarily speaking, either from the *anterior vena cava*, or *posterior vena cava*, or else from the *pulmonary veins*, which carry their blood to the *left auricle*, whereas the two former trunks convey it to the *right auricle* of the heart, a fact clearly ascertained by viewing the internal structure of a dead animal. There is no *pulsation* in the veins, and this circumstance is owing to the tequity of their coats, and their consequent inability to contract upon their contents. The only agents, by which the blood is circulated through them, are the pressure and action of the muscles, placed in contiguity with them, and also the "*vis a tergo*", as it is termed, of the circulating fluid, or the force behind, which is given to them by the *systole*, and *diastole*, that is to say, contraction and dilatation of the heart and arteries. We will however, no longer dwell upon the present subject, but refer to the next topic for consideration.

QUES. *What kind of disease is that, which is sometimes called vertigo.*

ANS. This is a more polite term, for that common disorder in the horse, which in stable language is generally called the "*megrims*." It is sometimes caused by an undue pressure upon the

brain, owing to an increased flow of blood to that organ, or it may arise from a collection of water, in the ventricles, or from a distended stomach; when it is only slight, it receives the name of *megrims*, a phrase just referred to, but when more violent, and the patient falls down insensibly on the ground, and the eyes are fixed in their sockets, from the force of the spasm, it is named *epilepsy*; the distinction is however hardly worth notice, for if viewed in its proper light, it is nothing more or less than a slight attack of apoplexy, occasioned in most cases by severe exercise in hot weather. It is characterized by a sudden falling back and reeling for a few minutes, with a convulsive motion of the eyes, shaking of the head and other symptoms, not much unlike fits in the human subject. It generally leaves the animal in about half an hour after its first occurrence; the horse is then able to return to his work again as usual, appearing to have suffered no material injury from it. The common practice of grooms and post boys, in this disorder, is to bleed in the mouth by opening the second or third bar, but this is attended with some degree of danger, if adopted by persons ignorant of anatomy; this fact I remember to have been proved, in a very convincing case: namely, a post horse having gone a long and hard stage on a hot summer's day, was suddenly seized on his return home with this complaint; the man who rode him, immediately bled him in the mouth, by opening the fourth and fifth bars; the animal bled profuse-

ly, and in a short time fell down, and fainted, being completely exhausted, from the great quantity of blood he had lost, indeed, he was thought by all the bye-standers to be then dying, but by prompt and judicious treatment, he was in time restored. I refer to this case, merely to show the absurdity and danger of bleeding, or suffering a horse to be bled in the mouth, when the advantages of general bleeding, that is in this complaint, are equally as *local*, or more so than the former plan. The best treatment in this affection, is to bleed from the neck, to bathe the forehead with very cold water, and if it occur in the summer season, to keep the patient in a cold shady place; should the “fits” or spasmodic convulsions continue after this plan has been tried, it will be necessary to give the following anti-spasmodic drench, viz:—

Tinct. of Assafœtida, 1oz.

Sweet Spirits of Nitre, $\frac{1}{2}$ oz.

Carbonated Liquor of Ammonia, $\frac{1}{2}$ oz.

Powder Opium, $\frac{1}{2}$ drm.

Valerian Powder, $\frac{1}{2}$ oz.

Mix in a pint and half of good warm ale. In a day or two afterwards, a mercurial purge should be given to prevent a relapse. This is the general plan of treatment to be pursued in such cases, but it will sometimes happen that the horse will be subject to occasional attacks of this affection, although the most judicious means may have been adopted for its prevention.

QUES. *Are worms very injurious to the horse.*

ANS. These creeping vermin, are not so fear-

fully injurious to the horse as some have unfoundedly imagined them to be, although we admit that they always occasion some inconvenience, and when very numerous may produce serious constitutional derangement; they are generally thought to do harm by absorbing the chyle and thus consuming a great part of the animal's source of nutriment, robbing him of that principle required for nutrition, growth of parts &c. Whether this be a fact or not, we shall not attempt to determine, but proceed briefly to describe the different sorts of worms, that infest the stomach and bowels of the horse. Those of the stomach are called *botts*, and are divided into two kinds one of which is formed from the insect named *æstrus equi* or horse fly, and the other springs from the genus called *æstrus hemorrhoidalis*. These are two different sorts of insects which deposit their eggs upon certain particular parts of the body. The animal is excited, probably by their producing a tickling sensation to lick or nibble them off the part to which they are attached, and thereby take them into his stomach, after which in process of time they become botts. For a correct knowledge of the particular form of these worms, I would advise the examination of the stomach of some worm-affected horse after death; where their peculiar structure may be much better ascertained, than it could be otherwise understood, even by the best written descriptions. Those of the *bowels* may now be noticed. These generally consists of two sorts, the lumbrici

teretes, as they are technically termed, and the ascarides. The former are named *lumbrici* from their slipperiness and *teretes* because of their shape which is long and round; they may therefore be distinguished by their length and roundness. The latter I conceive are called *ascarides* from their continual irritative motion in the bowels; their form &c. will be briefly noticed in our future descriptions. The *lumbrici teretes* are generally found in the small intestines, and are of a white colour not much unlike in their formation the common earth worm; I have frequently seen numbers of them past away with the fœces or dung and they have generally been ten or twelve inches long. They are said by some authors to be productive of severe cholick; this may be so in some solitary cases, but I confess I have never witnessed any instance in which that disease has originated from such a cause. The other kind of worms or the *ascarides* are extremely short and small, their extremities are sharp pointed and they are often called "*needle worms*." They are generally of a dark colour, and their form is so curious that nothing but a minute inspection can give us an adequate idea of it; worms of this description are often a great annoyance to the animal, particularly when they are abundant in the rectum or last bowel. There is also in some animals the *tænia* or tape worm. I have never seen this in the horse, but it is frequently found in the dog. I once saw one of this kind that came from a dog during vomition which when extended

or stretched out, was seventeen or eighteen inches long, bearing a singular resemblance to a piece of narrow tape. When it was thrown out of the stomach by the vomitory act, it was found coiled up in the same form as the main spring of a watch. Several of them came away, and they all bore that appearance. Worms have sometimes been found in the aqueous humour of the eye, and have been taken out, but never I believe without subsequent deprivation of sight. They are also frequently found after death in the great mesenteric artery, I have seen them in that vessel, in horses that died from atrophy, or consumption. Having given a brief description of the various orders of worms, that are seen in the horse, I will now describe the *treatment* necessary for their removal. The first kind or *botts* have never been effectually removed, before that season of the year in which by their instinct, so to speak, they always leave the *cuticular* coat of the stomach, and pass with the food through the bowels, to be expelled from the rectum with the dung. The most powerful medicines have been administered to accomplish that object, but without avail. Glandered subjects being of no value, have had even corrosive sublimate, given to them in terrible doses in order to remove them, but with no marked effect towards the expulsion of these pernicious vermin. They will however as we have just hinted, come away of themselves at their proper season, which is the latter end of the spring, or summer. I have sometimes at this time of

the year, given a dose of physic, and thus routed those ugly creatures by hundreds. Those worms that infest the *bowels* may generally be removed by giving a mercurial purge, repeated twice or three times if required, allowing a week between each dose. Oil of turpentine has been strongly recommended as a vermifuge, but I have not found it equal to active purgatives. The anti-moni-
 als also have been thought good vermifuges, but they do not appear to have much efficacy in this respect, the following balls however may be tried, if physic be objected to,

Best Sulphur, 5ozs.

Emetic Tartar, 10drms.

Ethiops Mineral, 3ozs.

Powdered Cascarilla, 2ozs.

Venice Turpentine, to form 6 balls.

Give one every morning, fasting, and during their use, chill the horse's drink, and give occasional mashies. These will sometimes remove them, but not so quickly or effectually as a mercurial purge. If there be much debility after the use of the mercurial purge, and the horse's appetite is imperfect, give a few of the restorative balls ordered in jaundice.

QUES. *What observations have you to make respecting the nature and treatment of wounds.*

ANS. Wounds are generally classified, or divided into four kinds:—viz. The simple incised wound, the lacerated and contused wound, the punctured wound, and wounds of cavities. In each of these classes, a somewhat different sys-

tem of treatment is required. I do not however, intend to enlarge extensively, upon the present subject, but shall merely comprise a few particulars concerning it, in as brief a manner as I possibly can, In the treatment of the *simple incised* wound, nothing more is necessary, generally speaking, than to bring together the divided parts, by means of *sutures* or the use of the needle and thread, and then to fix an adhesive plaster on the sides of the wound near its edges, after which it must be dressed with Friar's balsam, or tincture of aloes, and a bandage secured over the whole. This will heal it, by the "*first intention*," that is, if the dressing is not disturbed till two or three days after ; it will however sometimes happen that the ends of the wounded skin are so far asunder, as not to allow of stitches without much subsequent irritation ; in this case the use of the needle must be dispensed with, and either poultices or fomentations applied, and afterwards the following digestive liniment to promote suppuration, viz.—

Best Olive Oil, 4ozs.

Spirits of Turpentine, 1½oz.

Tinct. of Camphor, 1oz.

Tinct. Opium, 1oz.

Well incorporate the whole together with the yolk of an egg, and bottle for use, warm this mixture and freely apply it to the wound, but not to the surrounding swelling, which must be bathed with evaporating lotions. If a poultice of linseed meal could be put on the part, it would be better

than fomentations. After the suppurative process has taken place, the wound must be washed clean with warm water and dressed every day with Friar's balsam, which will generally soon heal it. If the fungus or "proud flesh" start up, it must be kept down by some escharotic application, such as the mixture for *ulcers*, but it must not be used too freely or incautiously, one pledget of it will commonly suffice. If this however is not sufficient, the lunar caustic must be used, and repeated till the fungus is reduced to a level with the skin, after which by the application of tincture of aloes it will soon heal. The *lacerated* and *contused* wound is so called, because it is generally much torn and bruised, and is occasioned by a blunt instrument. It is very dangerous and requires the "*antiphlogistic*" treatment to its fullest extent. I would here just remark that before any kind of treatment is adopted, the wound must be minutely examined, and if any extraneous substance be left in it, it must be taken out. I am inclined to believe, in short I am certain, that wounds of every description are seldom difficult to cure, but the frequent failure of medicinal interference, is often attributable to the ill-timed application of burning stimulants, more than to any other cause. There is however, another extreme, of which I would have you beware, and that is the practice of omitting the use of gently stimulating applications such as turpentine, spirits of wine, &c. combined with proper proportions of olive oil, simply because some upstart or other, who being

led away by the mere *fooleries* of medical refinement, happens to condemn them, under the odious titles of "*vile compositions*," *irritating applications*" &c. &c. There is a **great** deal more, of this sort of coxcomicalism or foppery among the skin deep modernists of the present day, than there need to be, this remark is not intended for *veterinary* surgeons, or indeed any of that profession, but to ~~the~~ magazine readers, would be reviewers, high sounding phraseologists; we will however say no more on that point, but proceed again with our subject by observing that the chief object of the practitioner ought to be, to prevent symptomatic fever, and high inflammatory action; to effect this, the patient should be bled freely, have a mild purge, be rowelled to produce contrary determination, and the wound with its neighbouring parts must be fomented five or six times a day. When good matter is formed, the attendant's fears are generally dispersed, all danger of mortification being then, generally speaking, removed. The formation of new flesh may be assisted by the use of the following digestive ointment, applied to the part warm, viz.—

Yellow Basilicon, 1lb.

Venice Turpentine, $\frac{1}{2}$ lb.

Red Precipitate, *finely* powdered, 4ozs.

The proportions of the latter, or precipitate may be lessened or increased, according to the state of the wound; melt the two first ingredients gradually, then, when nearly cool add the latter by degrees, and stir till stiff; keep this for gene-

ral use. If the granulations after this, form too fast or become luxuriant, they may be kept down by a solution of white vitriol, or if that fail by lunar caustic ; should the matter "*pond*" as some term it, or be confined, it must be discharged by incision, but if sinuses, or "pipes" form, from a detention of the *pus* or matter, they must be laid open and treated as directed under the head of ulcer. To describe however all the minutiae of the "*modus curandi*" or mode of curing wounds, required under some very peculiar circumstances, is almost impossible : at any rate for me to attempt this would be to exceed the limits of my avowed design, namely that of being brief throughout the whole of my descriptions. I shall therefore leave the peculiarities of their treatment, to the discretionary choice of the practitioner himself, who of course will be prepared by his experience to adopt his plan, to the state &c. of the case at the time being. The next order of wounds is named *punctured* wounds; by this term we mean that they are caused, by a sharp, or round pointed instrument, such as a fork tine &c., but let me here remark by way of exception, that wounds of *cavities*, though they are occasioned by the same cause, as the ordinary punctured wound, yet they come under an entirely different classification, or rather the treatment of the two is extremely dissimilar : the latter kind is treated in most respects in the same way, as the lacerated wound, but if after suppuration, the orifice, or mouth of it, be ulcerated or filled with "*fungi*"

lining," it may be enlarged by the cautious use of the knife, and then dressed with the nitrate of silver, once or twice, or if the bone at the bottom be carious, it must be treated as we have prescribed on the article *caries*. That kind of punctured wound, called a "*prick in the foot*" also requires to be briefly touched upon. It is a wound of the sensible laminæ, and arises from the nail of the shoe, being driven in a wrong direction. This kind of wound not unfrequently occasions such a violent inflammation, that the animal breaks out into profuse perspiration, a quick pulse and other symptoms of constitutional sympathy present themselves, in such a high degree as to exhibit the most excruciating pain. The general treatment of such is very simple, consisting merely of the perfect removal of the "*underrunning*," a dressing of tincture of myrrh and digestive ointment and a warm poultice over the hole; if proud flesh rise it may be kept down by some mild caustic. Another kind of punctured wound, originates from a nail running into the coffin joint by being tread upon; this produces severe lameness and requires to be somewhat differently treated to that which proceeds from "*pricking*," as it is termed. The surrounding horn must be well thinned, and the nail hole, if the *synovia* or joint oil flows from it, should be pencilled with lunar caustic, or if necessary, the actual cautery may be applied; I generally prefer the former. An emollient poultice may then be put over the whole foot. When the opening is closed, the sore may

be dressed with Friar's balsam, and digestive ointment every day, and if it become "foul," it must be dressed with the mixture for ulcers. It will be prudent, in the course of a few days after its occurrence, to blister the coronet, and repeat if required, once or twice. This kind of wound often leaves an irremediable lameness behind, even if well treated, but if badly managed, it sometimes causes the animal's death, that is to say, some farriers (not all, for many know better) by their extreme ignorance of the structure and economy of joints, will inject stimulating mixtures into them before they are ulcerated, in consequence of which the most torturing agony, and inflammation are produced, which if it does not end in death, is sure to cause a stiff joint. I will now proceed to notice wounds of *cavities*. Those cavities are called *circumscribed*, because they are confined or enclosed in such a manner, as to be defended from the contact of air, or other foreign and injurious communications. They include the *bursæ mucosæ* or those mucous bags that are connected with tendons, &c.—the joints, chests, abdomen, veins &c.; all of these parts are liable to be wounded, a distinct description of each, of which, may be briefly given. The first of them, or wounds of *joints*, require a peculiar treatment, and call for no ordinary share of practical acumen. The first thing to be done, is to close the hole, from which the oil escapes, that is if it be not so large as to render it impracticable; this may be effected by the lunar caustic, or actual cautery,

I have been in the habit of using the former with remarkably good effects, and can therefore recommend it as being more convenient, though not more effectual than the latter. The object of closing the joint, is to prevent the flow of that lubricating medium, called the *synovia*, and to exclude the admission of air into it, which is a direct excitant. The joint should be well and often fomented, and evaporating lotions frequently applied to the swelling; indeed bleeding, purging, and in short the whole of the depletive system, should be adopted, to its fullest extent. If the joint oil continue to run, in spite of all the means used to prevent it, and collections of matter form around the joint, and it becomes *ulcerated*; we may look forward for Anchylosis, or a stiff joint, either total or partial. The only thing likely to do good, in such cases, is to open the purulent collections, and inject the following mixture into them.

Sublimate $\frac{1}{2}$ drm.

Sugar of Lead, 2drms.

Muriatic Acid, 2drms.

Tinct. of Benzoin, 4ozs.

Mix and bottle for use. This will generally remove the ulcerative action of the synovial membrane, and its connexions, and dispose the parts to heal, but the case invariably ends in more or less, subsequent stiffness, or immobility of the joint. After this, blisters should be applied and repeated, and if they prove insufficient, firing must be resorted to, which, when the orifice is closed and healed, will be found of considerable

service. I remember, to have had a case, of ulcerated hock joint, of this kind, in which the animal was desperately lame, even, though the wound was thoroughly healed, and blisters had been applied; however, I *lightly* fired the whole joint, and the mare in a week or ten days afterwards could trot, comparatively free from lameness; this with other instances, proves the decided advantages of the actual cautery. Wounds of the *bursæ mucosæ*, may also be just noticed; these are little bags situated upon almost every joint, and are often punctured, either intentionally, from the brutal rage of the stabularian, or else from some unavoidable accident, such as the introduction of a fork tine, &c. Their treatment is the same as that of wounded joints, with this exception only, they seldom become ulcerated, but generally close, and therefore, do not require the injection of detergents, but merely the repetition of blisters and rest; I would however, observe, that no blisters (except in particular cases,) ought to be applied, until the *heat* is out of the part. Wounds of the *chest* and *abdomen*, are always attended with imminent danger, and require the depletive system of treatment, more perhaps than any other kind of wound; the opening into the *chest* should be covered with a pledgit of digestive ointment, and properly secured with a bandage; it should be frequently fomented, but no air must be allowed to get into that cavity, for reasons we before gave when treating on wounds of *joints*. Wounds of the *abdomen* or *belly*, differ

but little in their treatment to those of the chest. The only difference is this, if the bowels be torn they must be neatly sown up, as well as the external wound. A pledgit of the above ointment may then be put on the latter, and secured by a bandage in the same manner as in wounds of the chest. Let me here remark, that I highly deprecate the horrible practice of dressing the wounded intestines with hot oils, seeing that such a plan constitutes a species of butchering, equally as fatal to the animal, as it is disgraceful to the person who adopts it. Wounds of *veins*, have already been treated upon, in the article *inflammation*, and therefore need no specific reference. When *mortification* occurs, as the result of severe wounds, it must be treated in the manner we have distinctly described, under the head just alluded to.

QUES. *What is Zinc?*

ANS. Zinc, in its metallic or unchanged state, is I believe, never used as a medicine, but when by certain chemical combinations it is made into an acetate, an oxyde, or a sulphate, it is then very frequently employed both in medical and veterinary practice; the latter or the sulphate is far more commonly used, than any other form of zinc preparations. It is considered by some practitioners, to be an excellent tonic, when internally given, but whether this be the case or not, I am not able to vouch with certainty, having seldom, or never, had occasion to administer it as an internal medicine. It is a very valuable astringent, externally con-

sidered, and is often used in eye lotions, astringent ointments, &c.

The impure carbonate of zinc, or the *Lapis Calaminaris*, commonly called calamine stone, when reduced to fine powder, is frequently employed with considerable advantage, in small cracks of the heels, and other slightly ulcerated surfaces; it may either be sprinkled on the parts alone, or made into an officinal composition, with wax, Resin and oil, or hog's lard. The *Sulphate* of zinc, however, as I before remarked, is the most generally used both internally and externally speaking; in the latter point of view, when dissolved in vinegar, or vinegar and water, with a small proportion of spirits of wine in it, it makes a very good detergent application for wounds; that is, after supuration, but not before. In that form, it disposes them to take on a healthy action, whereby they are quickly brought to heal; it is likewise very serviceable in fistulous ulcers, and *Poll Evil*, after the use of the *scalding* mixture; indeed it is so in several other cases also which are too numerous to be minutely noticed or distinctly referred to. This article, whether used internally or not, should never be mixed with opium or catechu, because of their chemical incompatibility with each other.

FINIS.

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